



WAKE TECH

COMMUNITY COLLEGE

2006-2007 CATALOG

A Message from the President



Welcome to Wake Technical Community College!

Welcome, students! You are here because you want more – more knowledge, better employment opportunities, higher earning potential, greater job satisfaction, broader interests, sharper skills, new adventures. Wake Tech's administrators, faculty, and staff are committed to helping you achieve your goals and making your time at Wake Tech engaging and enriching. We think you'll find it life-changing.

Wake Tech operates in accordance with its core values – respect, responsibility, critical thinking, communication, and collaboration. As part of our accreditation process with the Southern Association of Colleges and Schools, we have examined every aspect of the programs and services we provide with a focus on quality. We have established a system of excellence in which everyone is accountable and held to the highest of standards.

Our college-wide quality enhancement efforts have a common goal: helping students! We teach critical thinking skills along with course content in all subject areas, preparing students for whatever lies ahead by strengthening their abilities to analyze and evaluate. We continuously upgrade classroom and laboratory technology so that we can offer students the latest tools for success. We have structured our student services programs to be more responsive to changing needs. Our faculty and staff keep up with new instructional techniques and trends through innovative professional development and leadership training programs. Our community partnerships with other schools and organizations expand each year, bringing a wealth of new options and opportunities for our students as they take their next steps.

We're glad you've chosen Wake Tech as the next part of your journey, and we think you've come to the right place. Whatever your destination, we want to help you get there.

Sincerely,

A handwritten signature in cursive script that reads "Stephen C. Scott".

Dr. Stephen C. Scott
President

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DIRECTORY

SERVICE/LOCATION	WEB ADDRESS	PHONE
Main Campus: 9101 Fayetteville Road (401 S), Raleigh, NC 27603	http://maincampus.waketech.edu/	919-662-3400
Health Sciences Campus: 2901 Holston Lane, Raleigh, NC 27610	http://healthsciencescampus.waketech.edu/	919-231-4500
Western Wake Campus: 3434 Kildaire Farm Road, Cary, NC 27518	http://westerncampus.waketech.edu/	919-335-1000
Business & Industry Center: 3434 Kildaire Farm Road, Cary, NC 27518	http://conted.waketech.edu/schedules/bic.php	919-335-1001
Northern Wake Campus: 6600 Louisburg Road Raleigh, NC 27616	http://northerncampus.waketech.edu/faqs.php	TBA
Adult Education Center: 1920 Capital Boulevard, Raleigh, NC 27604	http://basicskills.waketech.edu/AHS/index.php	919-715-3434
State Personnel Development Center (SPDC): 101 West Peace Street, Raleigh, NC 27603	http://www.osp.state.nc.us/train.htm	919-733-2474
GENERAL INFORMATION	http://www.waketech.edu/	919-662-3500
CALENDARS/DEADLINES	http://calendars.waketech.edu/	919-662-3500
ADMISSIONS	http://admissions.waketech.edu/	919-866-5420
ADVISING	http://admissions.waketech.edu/askanadvisor.php	919-866-5474
BASIC SKILLS (GED, Adult High School, etc.)	http://basicskills.waketech.edu/	919-866-5280 919-715-3434
CONTINUING EDUCATION	http://conted.waketech.edu/	919-866-5800
CURRICULUM EDUCATION	http://curred.waketech.edu/	919-662-3500
DISTANCE EDUCATION	http://distanceed.waketech.edu/	919-866-5618
DUAL ENROLLMENT (High School & College at the same time)	http://admissions.waketech.edu/dualenroll.php	919-866-5425
Wake Technical Community College FOUNDATION, Inc.	http://foundation.waketech.edu/	919-866-5924
ITS Services and Support (Helpdesk/ EagleCruiser/WebAdvisor, etc.)	http://its.waketech.edu/service.php	919-866-7000

Information subject to change -

RF 07-07



Wake Technical Community College

Resources and Services

Department of Counseling Services... *promoting student success and progress towards attainment of educational goals*

SERVICE	MAIN (401 S) CAMPUS LOCATION	PHONE
Advising: Pre-Curriculum	Student Services, Room 252 http://advising.waketech.edu/staff.php	866-5471
Advising: College/University Transfer	Student Services, Rooms 252 & 254 http://advising.waketech.edu/staff.php	866-5474
Advising: Computer and Engineering, Business, and Applied Technologies	Student Services, Room 128 http://advising.waketech.edu/staff.php	866-5420
Cashier's Office	Holding Hall, Room 111	866-5902
College Bookstore	Beside Student Services Bldg. http://www.waketech.bkstr.com	661-5113 662-3400
Computer Labs	http://students.waketech.edu/computerlabs.php Note: Main Open Computer Lab located in Pucher-LeMay Hall Room 151: Main Campus (No Phone)	662-3309 (Library: Main) 212-3836 (Library: Health) 662-3256 (ILC: Main)
Counseling: Academic, Career, and Personal	Student Services, Room 143 http://counseling.waketech.edu/	866-5460
Disability Support Services	Holding Hall, Room 108 http://disabilityservices.waketech.edu/	866-5670
Financial Aid	Student Services, Room 015 http://financialaid.waketech.edu/	866-5417
Individualized Learning Center (Reading, Writing, & Math tutoring)	Individualized Learning Center Building http://ilc.waketech.edu/	866-5276
Job Placement / Co-op Office	Holding Hall, Room 108C http://jobplacement.waketech.edu/ http://coopeducation.waketech.edu/apply.php	866-5693
Library	Library Education, First Floor http://library.waketech.edu/	866-5644
Photo I.D.	Student Services, Room 121F http://studentactivities.waketech.edu/idbadges.php	866-5405
Registration & Records Services	Holding Hall, Room 124 http://registration.curred.waketech.edu/	866-5700
SGA (Student Activities)	Student Services, Room 121G	866-5942
Veteran's Information	Student Services, Room 015	866-5401

Information subject to change -

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WAKE TECHNICAL COMMUNITY COLLEGE

Raleigh, North Carolina

◆ APPROVED BY ◆

Division of Vocational Rehabilitation,
(North Carolina Department of Human Resources)
Insurance Agents Pre-Licensing Education Program,
North Carolina Department of Insurance
North Carolina Appraisal Board
North Carolina Board of Nursing
North Carolina Department of Health and Human Services
- Division of Facility Services
North Carolina Office of Emergency Medical Services
North Carolina Real Estate Commission
North Carolina State Approving Agency for
Veterans Education and Training
North Carolina State Board of Community Colleges

PROFESSIONAL DEVELOPMENT FOR ENGINEERS

The North Carolina Board of Registration for Professional Engineers and Land Surveyors has approved the Engineering Technology Division to serve as an approved sponsor of Continuing Professional Competency activities for Professional Engineers and Registered Land Surveyors licensed by the State of North Carolina. Status as approved sponsors means that courses and programs offered by the Engineering Technology Division will be acceptable to the Board for Professional Development Hours (PDH).

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CATALOG OF INFORMATION

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WAKE TECHNICAL COMMUNITY COLLEGE

Raleigh, North Carolina

◆ ACCREDITATION ◆

SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS ACCREDITATION

Wake Technical Community College is accredited by the
Commission on Colleges of the Southern Association of Colleges and Schools
(1866 Southern Lane, Decatur, Georgia 30033-4097: Telephone number 404-679-4501)
to award the associate degree.

Specific Program Accreditation

Automotive Systems Technology Accreditation

The college's Automotive Systems Technology associate degree program is accredited by National Institute for Automotive Service Excellence (ASE). All eight areas meet the strict industry standards required for ASE MASTER certification. This is the highest level of achievement recognized by the National Institute for Automotive Excellence (ASE).

Criminal Justice Program Accreditation

The college's Criminal Justice Technology program is accredited by the North Carolina Criminal Justice Education and Training Standards Commission.

Culinary Technology Program Accreditation

The college's Culinary Technology program is accredited by the American Culinary Federation.

Dental Assisting and Dental Hygiene Programs Accreditation

The college's programs in Dental Assisting and Dental Hygiene have received accreditation (without reporting requirements) status from the American Dental Association, Commission on Dental Accreditation. A copy of the appropriate accreditation standards and/or the Commission's policy and procedure for submission of complaints may be obtained by contacting the Commission at 211 East Chicago Avenue, Chicago, IL 60611-2678, or by calling 1-800-621-8099, extension 4653.

Engineering Technology Program Accreditation

The college's Automation, Civil, Computer, Electronics, and Mechanical Engineering Technology programs are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

Heavy Equipment and Transport Technology/ Construction Equipment Systems Program Accreditation

The college's Heavy Equipment and Transport Technology/Construction Equipment Systems Program is accredited by Accreditation Board of the Associated Equipment Distributors.

Medical Assisting Program Accreditation

Wake Technical Community College's Medical Assisting Diploma program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Curriculum Review Board of The American Association of Medical Assistants Endowment (CRB-AAMAE).

Commission on Accreditation of Allied Health Education Programs, 1361 Park Street, Clearwater, FL 33756
(Telephone number 727-210-2350).

National Accreditation Agency for Clinical Laboratory Sciences Program Accreditation

The National Accreditation Agency for Clinical Laboratory Sciences (NAACLS) is the accrediting agency for the Medical Laboratory Technology program and the approving agency for the Phlebotomy program. The NAACLS is located at 8410 West Bryn Mawr Avenue, Suite 670, Chicago, IL 60631 (Telephone number 773-714-8880).

Radiography Program Accreditation

Wake Technical Community College's program in Radiography is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT). The JRCERT is located at 20 N. Wacker Drive, Suite 2850, Chicago, IL 60606-3182 (Telephone number 312-704-5300).

Surgical Technology Program Accreditation

The college's Surgical Technology program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) on recommendation of the Accreditation Review Committee for Surgical Technology (ARC-ST).

WAKE TECHNICAL COMMUNITY COLLEGE

◆ MEMBER OF ◆

American Association of Collegiate Registrars and Admissions Officers (AACRAO)	National Association of Student Financial Aid Administrators (NASFAA)
American Association of Community Colleges (AACCC)	National Council for Continuing Education and Training (NCCET)
American Association of Medical Assistants Endowment (AAMAE)	National Fire Protection Association
American Institute of Architects (AIA)	National HEP Camp Association
American Massage Therapy Association (AMTA)	National Organization for Associate Degree Nursing (N-OADN)
American Mathematical Association of Two-Year Colleges (AMATYC)	National Restaurant Association/NC Restaurant Association
Association Community College Business Officials (ACCBO)	National Institute for Staff & Organizational Development - The University of Texas at Austin (NISOD)
Association of Community College Facility Operations (ACCFO)	North Carolina Association of Colleges and Employers (NCACE)
Association of Community College Trustees (ACCT)	North Carolina Association of Community College Trustees (NCACCT)
Carolinas Association of Collegiate Registrars and Admissions Officers (CACRAO)	North Carolina Association of Coordinators of Veterans Affairs (NCACVA)
Chamber of Commerce - Apex	North Carolina Association on Higher Education and Disability (NC-AHEAD)
Chamber of Commerce - Cary	North Carolina Chapter - Colleges and Universities Personnel Association
Chamber of Commerce - Fuquay-Varina	North Carolina Citizens for Business and Industry (NCCBI)
Chamber of Commerce - Garner	North Carolina College and University Professional Association – Human Resources (NCCUPA-HR)
Chamber of Commerce - Holly Springs	North Carolina Community College Student Development Personnel Association (NCCSDPA)
Chamber of Commerce - Knightdale	North Carolina Council of Officers for Resource Development (NC CORD)
Chamber of Commerce - Morrisville	North Carolina Hispanic Chamber of Commerce
Chamber of Commerce – Raleigh	North Carolina Museum of Art
Chamber of Commerce - Rolesville	North Carolina Technology Association (NCTA)
Chamber of Commerce - Wake Forest	Public Relations Information Marketing Association (PRIMA)
Chamber of Commerce - Wendell	Raleigh-Wake Human Resource Management Association (RWHRMA)
Chamber of Commerce - Zebulon	Regional Transportation Alliance
College and University Professional Association For Human Resources (CUPA-HR)	Society for Human Resource Management
College Transfer Program Association (CTPA)	Southern Association of Colleges & Schools
A Cooperative for the Advancement of Community-Based Postsecondary Education (COMBASE)	Southern Association of Collegiate Registrars and Admissions Officers (SACRAO)
Committee on Accreditation of Allied Health Education Programs (CAAHEP)	Southern Association of Community, Junior, and Technical Colleges (SACJTC)
Community College Business Officers (CCBO)	Student Leadership Institute
Cooperative Education and Internship Association, Inc. (CEIA)	Triangle Area Hotel-Motel Association
Council for Resource Development	Triangle Tomorrow, Inc.
International Council on Hotel, Restaurant, and Institutional Education (ICHRIE)	US Chamber of Commerce
League for Innovation Community College Leadership Institute League Alliance Services	Wake AHEC/Triangle Nurse Appreciate Council
National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)	Wake Area Business Advisory Council (BAC)
National Association of College and University Business Officers (NACUBO)	World Future Society
National Association of Colleges and Employers (NACE)	
National Association Educational Buyers (NAEB)	
National Association of International Educators (NAFSA)	

WAKE TECHNICAL COMMUNITY COLLEGE

POLICY STATEMENT AFFIRMATIVE ACTION/EQUAL OPPORTUNITY

Wake Technical Community College offers Equal Employment and Educational Opportunities to all employees, students, prospective employees, and prospective students.

Affirmative Action, Equal Educational Opportunities and compliance with the Americans with Disabilities Act are viewed by the Board of Trustees as an integral part of the mission and purpose of Wake Technical Community College.

Questions concerning this policy should be addressed to:

STUDENT MATTERS
Dean of Students
Wake Technical Community
College
9101 Fayetteville Road
Raleigh, NC 27603-5696

EMPLOYEE MATTERS
Director of Human Resources
Wake Technical Community
College
9101 Fayetteville Road
Raleigh, NC 27603-5696

Individuals with disabilities who need assistance or require special accommodations to access college activities should request such services in advance by calling Disability Support Services at 919-866-5670 or 919-779-0668 (TDD).

STATEMENT OF POLICY

The contact hours shown in this catalog are minimal. It is a policy of this institution to permit students to enroll in additional subjects and laboratory work beyond those shown in the catalog.

CATALOG INFORMATION

Wake Technical Community College issues this catalog for the purpose of furnishing prospective students and other interested persons information about the College and its programs. Announcements contained herein are subject to change without notice and may not be regarded in the nature of binding obligation on the College. Effort will be made to keep change to a minimum, but changes in policy by the Board of Trustees of Wake Technical Community College may make some alterations in curricula or fees necessary. Changes to catalog information that occur between printings will be posted on the College's web site (www.waketech.edu).

CHANGES IN CURRICULUM, FEES, AND OTHER REQUIREMENTS

The Board of Trustees and/or administration of Wake Technical Community College reserve the right to change at any time, without notice, graduation requirements; fees and other charges; curriculum, course structure, and content; and other such matters as may be within its control, notwithstanding any information set forth in this catalog. Course offerings approved after publication of this catalog are described in class schedules that are issued each semester.

2006-07 ACADEMIC CALENDAR

FALL SEMESTER

August 15	Deadline for dropping with full refund
August 16	Fall Semester begins, 1 st Fall Mini-mester begins
August 22	Last day for late registration and adding course; payment deadline
August 25	75% refund period ends for curriculum classes. Last day to drop.
September 4	College Holiday - Labor Day
September 18.....	Last day to withdraw without penalty from 1 st Fall Mini-mester
October 5 & 6, 9 & 10*	Fall break for students
October 17.....	1 st Fall Mini-mester ends; deadline for dropping with 100% refund for 2 nd Fall Mini-mester
October 18.....	2 nd Fall Mini-mester begins
October 19.....	Last day for registration 2 nd Fall Mini-mester; registration payment deadline
October 23.....	Deadline for dropping with 75% refund from 2 nd Fall Mini-mester
October 27	60% point of semester. Last day to withdraw from Fall Semester without penalty
November 20.....	Last day to withdraw without penalty from 2 nd Fall Mini-mester
November 22	Break for students and faculty
November 23 & 24	College Holiday - Thanksgiving
December 14.....	Fall Semester evening classes end; 2 nd Fall Mini-mester evening classes end
December 15.....	Fall Semester ends; 2 nd Fall Mini-mester ends
December 16 - January 1	Winter break for students

SPRING SEMESTER

January 3	Deadline for dropping with full refund
January 4	Spring Semester begins; 1 st Spring Mini-mester begins
January 10	Last day for registration and adding course; late registration payment deadline
January 15	College Holiday – King's Birthday observed
January 16	Deadline for dropping with 75% refund
February 7	Last day to withdraw without penalty from 1 st Spring Mini-mester
March 1	1 st Spring Mini-mester ends
March 1	Deadline for dropping with 100% refund from 2 nd Spring Mini-mester
March 2.....	2 nd Spring Mini-mester begins
March 5	Last day for registration 2 nd Spring Mini-mester; registration payment deadline
March 7	Deadline for dropping with 75% refund from 2 nd Spring Mini-mester
March 12 - 16	Spring break for students
March 20	60% point of semester. Last day to withdraw without penalty from Spring Semester
April 5	Annual Faculty Professional Development Conference – No classes for day students
April 6	College Holiday – Good Friday
April 13.....	Last day to withdraw without penalty from 2 nd Spring Mini-mester
May 4.....	Spring Semester evening classes end; 2 nd Spring Mini-mester classes end
May 7	Spring Semester ends; 2 nd Spring Mini-mester classes end
May 8 – May 15.....	Break for students

SUMMER TERM

May 15.....	Deadline for dropping with full refund
May 16	Summer Term begins
May 22	Deadline for dropping with 75% refund; last day for registration and adding course; late registration payment deadline
May 28	College Holiday - Memorial Day
June 27	60% point of term; Last day to withdraw without penalty
July 4	College Holiday - Independence Day
July 25.....	All Summer Term evening classes end
July 26	Summer Term ends
July 27	Forty-fourth Annual Commencement Exercise

FIRST SUMMER MINI-MESTER

May 15	Deadline for dropping with full refund
May 16	First Summer Mini-mester begins
May 22	Last day for registration and adding course; Deadline for dropping with 75% refund
May 28	College Holiday - Memorial Day
June 6	Last day for withdrawing without penalty from first summer mini-mester
June 20	First Summer Mini-mester ends

SECOND SUMMER MINI-MESTER

June 20	Deadline for dropping with full refund
June 21	Second Summer Mini-mester begins
June 22	Last day for registration and adding course
June 23	Deadline for dropping with 75% refund
July 4	College Holiday - Independence Day
July 12	Last day for withdrawing without penalty from second summer session
July 26	Second Summer Mini-mester ends

*Subject to revision to meet changing conditions. Continuing Education schedule may vary. Consult the Schedule of Classes for applicable dates and deadlines.

BOARD OF TRUSTEES

	Expiration of Term
Robert M. Zippay, <i>Chair</i>	June 30, 2007
Jim W. Perry, <i>Vice Chair</i>	June 30, 2010
Gary B. Jordan	June 30, 2010
R. Keith Shackelford	June 30, 2010
Dr. William K. Atkinson	June 30, 2009
Wanda W. Denning.....	June 30, 2009
Dr. Benjamin D. Reese, Jr.....	June 30, 2009
James E. Herbst.....	June 30, 2008
Harvey L. Montague.....	June 30, 2008
J. Anthony Penry.....	June 30, 2008
Dr. Carl. D. Price	June 30, 2007
President, Student Government Association	Non-Voting Member

ADMINISTRATION

Dr. Stephen C. Scott
President

Mr. Gerald A. Mitchell
Executive Vice President
Office of the President

Vacant
Vice President
Continuing Education
Services

Mr. Bryan K. Ryan
Vice President
Curriculum Education
Services

Mr. Wendell B. Goodwin
Facilities Engineering Officer
Facilities Services

Dr. Robert E. Ireland
Vice President
Student Services

Mr. O. Morton Congleton
Executive Director
Wake Technical Community
College Foundation, Inc.

Ms. Laurie Clowers
Director
Public Relations and
Marketing

Ms. Clay T. Hines
General Counsel
Office of the President

Denise Wetli
President
Faculty Association

Ray Tims
President
Staff Council

Dr. Larry Appleton
Senior Vice President
Administrative Affairs

Dr. Darryl D. McGraw
Chief Information Officer
Information Technology
Services

Mr. W. Ward Preston
Vice President
Financial Services

Stan Wood
Chief Business Officer
Business Services

AREAS OF STUDY

Associate Degree Programs

A degree is awarded for successful completion of a two-year program of study.

General Education

- B Associate in General Education A10300

College/University Transfer

- A Associate in Arts A10100
- B Associate in Science A10400
- B Associate in Science - Pre-Major: Engineering A1040D

Business Education

- B Accounting A25100
- B Business Administration A25120
- * Business Administration/Electronic Commerce A2512I
- B Business Administration/Human Resources Management A2512C
- A Criminal Justice Technology A55180
- D Culinary Technology A55200
- B Early Childhood Associate A55220
- D Hotel and Restaurant Management A25240
- D Medical Office Administration A25310
- D Office Systems Technology A25360
- D Office Systems Technology/Legal A2636A

Computer and Engineering Technologies

- B Advertising and Graphic Design A30100
- D Architectural Technology A40100
- D Civil Engineering Technology A40140
- B Computer Engineering Technology A40160
- B Computer Information Technology A25260
- B Computer Programming A25130
- B Database Management A25150
- B Electronics Engineering Technology A40200
- D Environmental Science Technology A20140
- B High Performance Computing A25230
- B Industrial Engineering Technology A40240
- D Industrial Pharmaceutical Technology A20180
- B Information Systems Security A25270

- D Landscape Architecture Technology A40260
- D Manufacturing Technology/Plastics A5032A †
- B Mechanical Engineering Technology A40320
- B Networking Technology A25340
- B Simulation and Game Development A25450
- D Surveying Technology A40380
- A Web Technologies A25290

Health Sciences

- D Associate Degree Nursing A45120
- D Dental Hygiene A45260
- D Emergency Medical Science A45340
- B General Occupational Technology A55280
- B Human Services Technology A45380
- B Human Services Technology/
Developmental Disabilities A4538A
- B Human Services Technology/Substance Abuse A4538E
- D Medical Assisting A45400
- D Medical Laboratory Technology A45420
- D Radiography A45700

Vocational Technology

- D Air Conditioning, Heating and Refrigeration Technology A35100
- D Automotive Systems Technology A60160
- D Electrical/Electronics Technology A35220
- D Heavy Equipment and Transport Technology A60240
- D Heavy Equipment and Transport Technology/
Construction Equipment Systems A6024B
- D Industrial Systems Technology A50240
- D Machining Technology A50300
- D Machining Technology/Tool, Die, and Mold Making A5030A
- D Mechanical Drafting Technology A50340

Diploma Programs

A diploma is a one-year course of study focusing upon marketable skills.

Business Education

- B Early Childhood Associate D55220A
- B Office Systems Technology D25360A

Computer and Engineering Technologies

- D Manufacturing Technology/Plastics D5032AB †
- B Simulation and Game Development D25450A

Health Sciences

- D Computed Tomography and Magnetic
Resonance Imaging Technology D45200
- D Dental Assisting D45240
- B Medical Assisting D45400
- D Surgical Technology D45740
- B Therapeutic Massage D45750

Vocational Technology

- D Air Conditioning, Heating, and Refrigeration
Technology D35100A
- D Automotive Systems Technology D60160A
- D Electrical/Electronics Technology D35220A
- D Heavy Equipment and Transport Technology/
Construction Equipment Systems D6024BA
- D Industrial Systems Technology D50240A
- D Machining Technology D50300A
- D Mechanical Drafting Technology D50340A
- D Plumbing D35300
- D Welding Technology D50420A

Legend

- D = Day
- E = Evening
- B = Both Day & Evening
- * = Distance Education
- A = All the above
- † = Not open to new students

Certificate Programs

A certificate is a short course of study, often less than one year, providing skills in a specific area.

Business Education

- B Business Administration: Customer Service C25120B
- D Business Administration: Entrepreneurship C25120C
- B Business Administration: Sales Development C25120A
- E Business Administration/Human Resources Management C2512CA
- B Culinary Technology C55200A
- D Culinary Technology: Baking C55200B
- E Early Childhood Associate C55220B
- E Early Childhood Associate: Infant/Toddler Care C55220C
- D Hotel and Restaurant Management: Hotel Management C25240A
- D Hotel and Restaurant Management: Restaurant Management C25240B
- E Medical Office Administration: Medical Billing and Coding C25310B
- A Medical Office Administration: Medical Office Specialist C25310A
- E Medical Office Administration: Medical Transcription Specialist C25310C
- E Office Systems Technology: Integrated Office Systems C25360D
- A Office Systems Technology: Office Publications Certificate C25360E
- B Office Systems Technology: Office Specialist I C25360F
- B Office Systems Technology: Office Specialist II C25360C
- B Office Systems Technology: Word Processing C25360B
- E Office Systems Technology/Legal C2536AA
- E Real Estate C25400A
- E Real Estate Appraisal C25420

Computer and Engineering Technologies

- B Advertising and Graphic Design: Graphics and Design C30100A
- B Advertising and Graphic Design: Web and Graphic Design C30100B
- B Architectural Technology: Architectural CAD C40100A
- B Automation Engineering Technology: PLC Programming C40120B
- B Automation Engineering Technology: Robotics: C40120C
- D Civil Engineering Technology: Civil Design C40140A
- B Computer Engineering Technology: C Programming – Open Source Development C40160B
- B Computer Engineering Technology: Linux Kernel Development C40160E
- B Computer Engineering Technology: Pentium System Architecture C40160D
- B Computer Information Technology: Computer Forensics C25260J
- B Computer Information Technology: Hardware Troubleshooting (A+) C25260G
- B Computer Information Technology: IT Support Management C25260L
- B Computer Information Technology:: IT Support Technician (MCDST) C25260K
- B Computer Information Technology: Microsoft Office Specialist C25260A
- B Computer Information Technology:: Spreadsheet Management C25260E
- B Computer Programming: C++ Programming C25130C
- B Computer Programming: Computer Science C25130E
- B Computer Programming: JAVA Programming C25130A
- A Computer Programming: Visual BASIC Progr. C25130B

- A Database Management: Oracle DBA Programming C25150B
- A Database Management:: Oracle Developer C25150A
- B Electronics Engineering Technology: Basic Electronics C40200A
- B High Performance Computing: Bioinformatics Computing C25230B
- B High Performance Computing: Linux/Red Hat Administration C25230C
- B Industrial Engineering Technology: Advanced Quality Assurance C40240C
- B Industrial Engineering Technology: Industrial Management C40240A
- B Industrial Engineering Technology: Quality Assurance C40240B
- B Information Systems Security: Network Security Admin. C25270A
- D Landscape Architecture Technology: Landscape Architecture C40260A
- D Manuf. Tech./Plastics: Engineering Materials C5032AH †
- D Manuf. Technology/Plastics: Manufacturing Practices C5032AG †
- D Manuf. Technology/Plastics: Plastics Ext. C5032AC †
- D Manufacturing Technology/Plastics: Plastics Injection Molding C5032AF †
- B Mechanical Engineering Technology: Mechanical Design C40320B
- B Mechanical Engineering Technology: Thermal Mechanics C40320C
- B Networking Technology: Cisco Certified Associate C25340C
- B Networking Technology: Cisco Certified Network Professional (CCNP) C25340I
- A Networking Technology: Microsoft Certified Systems Engineer (MCSE) C25340A
- D Surveying Technology: Surveying C40380A
- B Web Technologies: E-Commerce Programming C25290B
- B Web Technologies: Web Designer C25290C
- B Web Technologies: Web Developer C25290A

Health Sciences

- * Computed Tomography Technology C45200A
- B Human Services Technology/Substance Abuse C4538EA
- * Magnetic Resonance Imaging Technology C45200B
- B Nursing Assistant C45480
- D Phlebotomy C45600

Vocational Technology

- B Air Conditioning, Heating, and Refrigeration C35100B
- B Basic Law Enforcement Training C55120
- B Construction Management Technology C35190B
- B Electrical/Electronics Technology: Commercial Wiring Methods C35220C
- B Electrical/Electronics Technology: Residential Wiring Methods C35220B
- B Heavy Equipment and Transport Technology: Fuel Injection, Electrical, and Electronics C6024BC
- B Heavy Equipment and Transport Technology: Hydraulics, Engines, and Transmissions C6024BB
- B Industrial Systems Technology C50240B
- B Machining Technology C50300B
- B Machining Technology: CNC Machining C50300C
- B Machining Technology/Tool, Die, and Mold Making: Mold Making C5030AA
- B Mechanical Drafting Technology C50340B
- D Plumbing Applications and Diagrams C35300A
- D Plumbing: Modern Plumbing Codes and Blueprint Reading C35300B
- B Welding Technology C50420B

Other Programs

Cooperative Agreement Programs

A Cooperative Agreement program is one in which a student is concurrently enrolled in high school **and** Wake Tech.

D Concurrent (Dual) Enrollment T90980

D Huskins Bill T90970

Transitional Programs

Transitional programs are designed to allow students to move from one stage of development to another.

B Associate in General Education (undecided) A10300ZU

D English as a Foreign Language (EFL) A10300ZQ

CONTINUING EDUCATION PROGRAMS

Basic Skills

Adult Basic Education

Grades 0-4 Program

Grades 5-8 Program

GED/High School Diploma Equivalency

Adult High School Diploma

Academic Improvement

Adult High School Diploma Program

Courses of General Interest

Compensatory Education

English as a Second Language

Business and Industry Services

Apprenticeship Training

Focused Industrial Training

Human Resources Development

New and Expanding Industry Training

Management Development Program

Small Business Center

Evening and Weekend Programs

Occupational Training and Upgrading

Wake County Community Schools Program

Evening Curriculum Program

Lateral Entry Program

Public Safety and Service Occupations

Corrections Education

Fire Service Training

Health Education Training

Public Safety and Homeland Security

Service Occupations

Education Services Technology

Continuing Education Registrar

Grants & Special Projects

Continuing Education Records

Continuing Education Human Resources Development

Non-Credit & Weekend Computer Education and

IT Related Services

Human Resources Development

General Information

HISTORY

Wake Technical Community College is a tax-supported, public, nonprofit educational institution under the control of a Board of Trustees. It is an institutional member of the North Carolina Community College System, State Board of Community Colleges. Authority for the establishment of the College is found in Chapter 115D of the General Statutes of North Carolina and the amendments thereto.

The College was chartered on April 3, 1958, as the Wake County Industrial Education Center. Operation actually began October 7, 1963, with 34 curriculum students on campus and 270 enrolled in the various industrial training programs.

On January 8, 1964, the Center was formally dedicated as W.W. Holding Industrial Education Center and transferred from the Wake County Board of Education to a Board of Trustees. On March 3, 1966, W.W. Holding Industrial Education Center was granted approval by the State Board of Education as W.W. Holding Technical Institute and licensed to award the Associate in Applied Science degree. The name was changed to Wake Technical Institute in September 1974 and to Wake Technical College on March 1, 1980. The name was changed to Wake Technical Community College on December 1, 1987.

On December 3, 1970, the College was accredited by the Southern Association of Colleges and Schools.

MISSION STATEMENT

The mission of Wake Technical Community College is to help improve and enrich lives by meeting the lifelong educational, training, and service needs of its diverse community. The College is committed to promoting individual success in the workplace and higher education and to promoting cultural, social, and economic development.

In pursuit of its mission, this public two-year comprehensive postsecondary educational institution adheres to an open-door policy by offering quality accessible and affordable educational opportunities to all adults regardless of age, sex, socioeconomic status, ethnic origin, race, religion, or disability. To meet the needs of its community, the College focuses on providing support services, resources, community outreach, and partnerships; programs in basic skills development; vocational, technical, and occupational training; and college/university transfer preparation.

Our Vision

At Wake Technical Community College, our vision is a college that exceeds the expectations of its stakeholders for effective lifelong education and workforce training by providing world-class programs, services, and resources through an approach that models and teaches the core values of respect, responsibility, critical thinking, communication, and collaboration.

Core Values

The College has set out to provide a model for other institutions of higher education and an example for its students through its commitment to its core values.

- **Respect**—Respect is a prerequisite for enhancing learning. Community members who respect themselves and others help create a safe, yet open, climate of learning.
- **Responsibility**—Responsibility is the root of success. Students who assume personal responsibility for their education will reach their goals. Responsible students also make contributions to their communities.
- **Critical Thinking**—Critical thinking is the fundamental purpose of higher education. The ability to solve problems through the application of the appropriate skills is critical to all disciplines.
- **Communication**—Communication is increasingly the key competency for living and working in the information age. Communicating effectively in oral and written forms through traditional and new media is a powerful tool for personal and career success.
- **Collaboration**—Collaboration, by bringing together individual knowledge and talents, creates teams that are greater than the sum of their parts. Such teamwork maximizes benefits to individuals and the community.

COLLEGE GOALS

Student Success

Provide a dynamic learning environment to ensure successful achievement of students' goals by administering sound policies, curricula, instruction, and support services.

Workforce Development

In collaboration with Regional Economic Development Partnerships, identify the workforce needs of emerging jobs in rural and urban economies in North Carolina. Develop and implement the educational and training programs necessary to meet the workforce needs of each community college service area in North Carolina and promote recruitment, retention, and development of high quality faculty and staff necessary to achieve the educational and training objectives of the community college system and provide North Carolina with a world-class workforce.

Diverse Populations Learning Needs

Provide North Carolina citizens with the opportunity to develop essential skills for lifelong learning. Upgrade and retrain North Carolina learners for the workplace through flexible, accessible, and customized educational and training programs within their communities.

Resources

Continuously research, analyze, and secure the resources necessary to fulfill the mission of the North Carolina Community College System and develop processes for measuring the effectiveness of resource allocations and utilization, within the North Carolina Community College System.

Technology

Encourage and support North Carolina Community College faculty and staff in the effective and efficient uses of instructional technology and administrative computing systems to improve the delivery of academic programs to North Carolina citizens.

Community Services

Provide courses and support service activities for the enrichment of the community's civic, economic, and cultural needs.

PROGRAMS AND SERVICES

The College translates its mission, vision, values, and goals into action through clearly defined programs and services. Specifically, the College

- offers credit programs leading to associate degrees, diplomas, and certificates designed for immediate entry into employment, an associate degree in general education, and associate degrees designed to transfer to four-year institutions. The College also offers pre-curriculum programs for students to develop academic proficiency so that they may successfully complete curriculum courses.

- provides occupational career enhancement programs for individuals and support for economic development to businesses, industries, and agencies. Basic skills education, English as a Second Language and a wide variety of continuing education courses and programs for personal enrichment are offered on campus and throughout the county. The College further serves its constituents by providing a broad range of community services, partnerships, and outreach programs.
- provides a wide range of support services designed to assist students in successfully fulfilling their education and occupational goals. These services, developed to meet the diverse needs of individual students, begin with their initial contact with the College and continue throughout their enrollment and job placement or transfer for further study.
- practices sound fiscal management and systematic planning to provide facilities, equipment, and state-of-the art technology to ensure quality education opportunities at secure facilities accessible to Wake County citizens.

WAKE TECHNICAL COMMUNITY COLLEGE FOUNDATION, INC.

Wake Technical Community College Foundation solicits private support from corporations, foundations and individuals.

Gifts are used for emergency financial aid and student scholarships, equipment, recognition awards, professional development, facility improvements, and a variety of other purposes outside the scope of traditional college funding sources. The Foundation also enables the College to meet emergency funding needs as well as special opportunities that improve Wake Tech's ability to serve the community.

All private gifts to Wake Technical Community College should be directed to the Wake Technical Community College Foundation, a tax-exempt, 501(c)(3) nonprofit corporation, operating exclusively for the benefit of the College and Wake Tech students.

Donors or advisors should send correspondence to:

Executive Director

Wake Technical Community College Foundation
9101 Fayetteville Road
Raleigh, North Carolina 27603-5696
919-866-5926
mcongleton@waketech.edu

2006 Critical Success Factors

Twelve Performance Measures for Accountability

Based on requirements established by the North Carolina General Assembly in 2000, Wake Technical Community College is required to publish performance data on the twelve critical success factor measures annually in its electronic catalog and in its printed catalog.

1. Progress of Basic Skills Students:

(Performance Standard: 75%) (2004-2005)

Total FTE	Total Served in Literacy	Completed a Level or Goal	Progressing Same Level
10,377	7,807	6%	49%
Exit Non- Completers	Moved to a Higher Level	Composite Progress Percent	
19%	26%	81%	

2. Passing Rates on Licensure and Certification Examinations

(Performance Standard: Aggregate = 80%; Individual Exams = 70%) (2004-2005)

Total Number of Test Takers	Total Number Passing	Aggregate Institutional Passing Rate	Number of Exams with a Passing Rate Less than 70%
406	387	95%	1

	Number Tested	Percent Passed
Basis Law Enforcement Training	75	95
Dental Hygiene	16	100
Emergency Medial Tech: (EMT)		
EMT	126	94
EMT-I	29	86
EMT-P	14	93
Nursing (Registered Nursing)	101	91
Radiography	24	100
Real Estate (Sales)	61	67

3. Goal Completion of Completers

(Performance Standard: 95%)

Percent of Completers who report meeting their goal for attending a community college (2004-2005)

Number	% Completed Goal
635	99

4. Employment Status of Graduates

(Performance Standard: 95% adjusted)

Percent of 2003-2004 Graduates Employed within One Year of Completion

Percent of 2003-2004 Graduates Employed Within One Year of Graduating	Number of Graduates (Minus inmates and missing students)
99.44%	887

5. Performance of College Transfer Students
 (Performance Standard: 87.1% System Total [≥ 2.0])

Percent of 2003-2004 College Transfer Students with a GPA of greater than or equal to (\geq) 2.0 after two semesters at a UNC Institution

24 or more semester hours		Associate Degree Recipient		Total	
Number	Percent ≥ 2.0	Number	Percent ≥ 2.0	Number	Percent ≥ 2.0
296	88.2%	113	92%	409	89.2%

6. Passing Rate of Students in Developmental Courses 2004-2005
 (Performance Standards: 70%)

Reading		Math		English		Total	
#Completed	%Passed	#Completed	%Passed	#Completed	%Passed	#Completed	%Passed
693	95%	3,018	82%	1,011	87%	4,722	85%

7. Success Rate of Developmental Students in Subsequent College Level Courses 2004-2005
 (Performance Standard: No statistical significant difference in the performance of Developmental Students as compared to Non-Developmental Students)

Developmental		Non-Developmental	
Number Took	% Passed	Number Took	% Passed
705	84%	3,510	87%

8. Satisfaction of Program Completers and Non-Completers 2004-2005
 (Performance Standard: 90%)

Completers		Non-Completers		Total	
Number	% Satisfied	Number	% Satisfied	Number	% Satisfied
641	96	441	93	1,082	95

9. Curriculum Student Retention and Graduation 2004-2005
 (Performance Standard: 60%)

Total Cohort	% Graduated	% Returned	% Graduated or Returned
10,803	23%	47%	69%

10. Employer Satisfaction with Graduates 2001-2002 through 2004-2005
 (Performance Standard: 85%)

# of Employers Surveyed	Response Rate	% Satisfied
786	31	95%

11. Client Satisfaction with Customized Training 2004-2005
 Performance Standard: 90%)

# of Survey Respondents	% Satisfied
1,774	100

12. Program Unduplicated Headcount Enrollment 2004-2005
 (Performance Standard: Three-year average annual enrollment must not be less than ten students)

Number of Programs with a three-year average annual enrollment of less than ten students (2004-2005) = 0.

Student Services

Mission and Goals

The mission of Student Services of Wake Technical Community College is to support the educational goals of the institution and contribute to the cultural, social, intellectual, and physical development of students, regardless of age, sex, socioeconomic status, ethnic origin, race, religion, or disability.

To accomplish its mission, Student Services has established the following continuous goals.

- A. To interpret and distribute to the public, prospective students, and students the College's objectives, policies, and educational opportunities.
- B. To assist the student to select, enter, progress within, and complete a course of study, whether associate degree, diploma, certificate, upgrading, basic education, or cultural in nature.
- C. To provide a professionally competent and continuing counseling program to assist students with academic, vocational, personal, and socioeconomic problems, as well as to assist in transfer to a senior institution.
- D. To serve as the advocate for students in their dealings with the administration of the College.
- E. To record, maintain, protect and make available to authorized persons information accurately reflecting the efforts and achievements of the College's students.
- F. To provide a comprehensive program to remove as many financial barriers to education as possible for those unable to pay.
- G. To provide educational and growth opportunities through a comprehensive program of student government and other student activities and events.
- H. To promote and encourage programs related to the health, safety, and physical welfare of the students.
- I. To report properly student data to appropriate agencies.
- J. To work cooperatively with the Institutional Effectiveness and Research Office and the Grants Development.
- K. To provide employment opportunities for students and alumni and to provide access to employers in meeting their workforce needs.
- L. To continuously evaluate and improve Student Services.

Campus Security and Safety

The Board of Trustees of Wake Technical Community College has adopted policy statements in compliance with the dictates of the Federal Crime Awareness and Campus Security Act of 1990, the Federal Campus Sexual Assault Victims Bill of Rights Act of 1992, and the Higher Education Amendments of 1998. Full text copies of those policies are maintained by the College and are available upon request.

The College's Security Manager is primarily responsible for developing rules and regulations to implement these policies. Crimes on the main campus are reported to the Wake County Sheriff's Department (or other appropriate law enforcement agency), which investigates on-campus murder, criminal sexual assault, criminal sexual abuse, robbery, aggravated assault, aggravated battery, burglary, motor vehicle theft, liquor law violations, drug abuse violations, weapons possession, and other emergencies on campus considered to be a threat to safety. Crimes on the Adult Education campus and the Health Sciences campus are reported to the Raleigh Police Department. Timely reports of such occurrences are made to employees and students. In the event the perpetrator of a violent crime is subject to discipline by the College, the victim of the crime shall, at the discretion of the College's administration, be permitted to obtain results of the disciplinary proceeding.

The College prepares, publishes, and distributes statistical reports that identify the occurrence of campus crimes and the number of campus arrests involving liquor law violations, drug abuse violations, and weapons violations. The policy statements and statistical reports are available upon request to students and employees as well as prospective students and the higher education community.

Security patrol and traffic control matters are handled by a private security company under contract with the College. This company is responsible to the College's Security Manager, whose office is in Holding Hall, and whose telephone number is 866-5532. The Security Manager also can be contacted by dialing the College's main switchboard number, 662-3400 (from off-campus or from a coin telephone), or by dialing "0" from a school telephone. Students, employees, and visitors are encouraged to report criminal activity and other emergencies on campus at 866-5911.

Students and employees are prohibited from bringing onto campus or using alcohol or illegal drugs on campus or during any College activity. Limited exceptions to this policy may be granted by the College's President or designee. The College has a Drug and Substance Abuse Council, which offers help to students and employees in seeking counseling and/or assistance programs.

From time to time workshops and seminars are conducted on campus relating to the following subjects:

Crime and Safety	Self-Defense
Drugs and Alcohol	Date Rape

Other information is periodically published in the campus *News and Views* and the student newsletter, *The Eagle's Eye*. The student newspaper, *The Student Voice* discusses and debates health, safety, self-defense, etc., issues.

Campus safety means protecting people and property. People working together can take the bite out of crime. Report suspicious persons, vehicles, and activities to the Security Patrol Officer or the Security Manager.

Students attending classes in the evenings should walk in well-lighted areas with someone or near other people. Extra precaution should be taken by using sidewalks and crosswalks and by avoiding isolated areas. Personal valuables should be marked and NOT left unattended. Vehicles should be parked in a well-lighted area and locked.

When students or instructors arrive for a class and the classroom or building is locked, the appropriate instructor should call a security officer at 866-5911 (before 8 a.m.) or 662-3400 (after 8 a.m.) to ask that the classroom or building be opened. This action should only be taken if it is 30 minutes or less before the scheduled class.

Presentations by Local Law Enforcement Personnel

Presentations are conducted by the Wake County Sheriff's Department, Raleigh Police Department, SBI, and the N. C. Highway Patrol concerning robbery, motor vehicle theft, and drugs and alcohol.

Annual Report of Criminal Offenses

The Crime Awareness and Campus Security Act of 1990, revised by Congress in 1998, requires publication of criminal activity in the following categories. The figures shown encompass all three campuses of Wake Technical Community College.

Category	Calendar Year 2005	Calendar Year 2004	Calendar Year 2003
Murder	0	0	0
Sexual Offenses	0	0	0
Robbery	0	0	0
Aggravated Assault	0	0	0
Burglary	0	0	0
Motor Vehicle Theft	0	2	1
Manslaughter	0	0	0
Arson	0	0	0
Hate/Prejudice Crime	0	0	0

The following are statistics regarding arrests on campus in the listed categories:

Category	Calendar Year 2005	Calendar Year 2004	Calendar Year 2003
Liquor Law Violations	0	1	0
Drug Abuse Violations	1	0	0
Weapon Possessions	0	0	0

Use of the Student Lounge

The purpose of the Student Lounge is to allow students to meet with individuals or in small groups, relax between classes, play chess or checkers, and participate in educational activities, workshops, and other student related events. Therefore, with these purposes in mind, the following guidelines must be observed in the Student Lounge:

- ◆ No loud noises (voices or electronic devices). If using electronic devices earphones must be used.
- ◆ No musical instruments unless authorized.
- ◆ No profanity.

Dining is not allowed in the Student Lounge. All foods should remain in the cafeteria except for vending machine snack foods (crackers, chips, candy bars, etc.), which are allowed.

It is each person's responsibility to keep the lounge area presentable. Furniture is not to be moved or abused in any manner. Trash is to be placed in receptacles.

Failure to comply with these guidelines will result in the loss of Student Lounge privileges for one week. A second offense will result in loss of privileges for one semester.

- ◆ Card playing is not permitted inside any building of the College except the Student Lounge.
- ◆ Shirts and shoes must be worn at all times.

Cleanliness and Proper Dress

Personal cleanliness is an expectation in the College environment. This includes making use of the disposal containers in the halls and in all areas of shops, classrooms, lounges, and cafeteria. Littering is not allowed. Students are expected to dress appropriate to their major area of study. Students are not allowed in any campus facility without shoes and shirts. Caps and hats should not be worn in any classroom.

In the areas of study that require special clothing, students will attire themselves accordingly. Safety equipment such as goggles, shields, helmets, etc. is available and, in some instances, is required for student purchase and use in shop and laboratory activities.

In cases where a student's dress or hygiene interferes with the learning process, the instructor shall conduct initial counseling with student. Repeated occurrences will result in referral to the Dean of Students Office or designee.

Indebtedness

Student financial obligations at the college including past due tuition and fees, bookstore debts, library fines, returned checks, parking fines, and financial aid repayments must be satisfied before a student is eligible to register for future semesters, graduate, receive transcripts or have access to other college services. A student may also be dropped from classes that are not paid for, or that a check has been returned for.

Solicitation

Solicitations occur in numerous forms, formats, and techniques. "Solicitations," as they relate to this section of the Handbook, shall be deemed to include, among other activities, attempts to address all or portions of the College community to express social, political, or religious views, to disseminate written materials, or to solicit, accept, or collect donations or contributions. The general policy of the College is that any individual, organization, agency, or cause that desires to solicit on any property which is owned, leased, or operated under the jurisdiction of the College, is required to obtain the prior approval of the Office of the College President in writing. Specific policies are stated below:

A. Distribution of Written Materials

Pamphlets, publications, written materials, advertisements, and any other such materials may not be distributed through any form of the College's internal mail system. Such materials may, however, be distributed by hand at such time(s) and at such location(s) as may be designated in writing by the College President, upon written application submitted in accordance with paragraph E below. Any individual, organization, agency, or cause that distributes written materials on any property which is owned, leased, or operated under the jurisdiction of the College shall reimburse the College for any of the College's internal or external clean-up costs associated with the distribution of such materials.

B. Posting of Messages or Materials

It is expressly prohibited for any individual, agency, organization, or cause, not officially affiliated with the College to use any surface such as wall, bulletin board, tree, or the like that is located on any property which is owned, leased, or operated under the jurisdiction of the College to display any written or otherwise visual materials.

C. Commercial Use of Bulletin Boards

The College provides some bulletin board space for its students and employees to advertise or request goods and services. Other than such limited use by the College's students and employees, bulletin boards located on any property that is owned, leased, or operated under the jurisdiction of the College may not be used for commercial purposes.

D. Donations and Contributions

Only individuals, organizations, and groups that have registered with the Department of the Secretary of State under Chapter 131F of the General Statutes of North Carolina, or individuals, organizations, and groups that are exempt from these registration requirements, may solicit, accept, or collect donations or contributions for any purpose on any property which is owned, leased, or operated under the jurisdiction of the College. Prior to engaging in any such activities, those individuals, organizations, and groups who desire to solicit, accept, or collect donations or contributions shall request permission in writing from the Office of the College President in the manner provided in paragraph E below for "Other Solicitations." If made in compliance with this policy, such requests to solicit shall be allowed, although the solicitations will be subject to the same conditions, limitations and restrictions as provided in paragraph E below for "Other Solicitations."

E. Other Solicitations

Goods and Services—Students who desire to solicit on any property that is owned, leased, or operated under the jurisdiction of the College to provide goods or services should make their request in writing to the Dean of Students. The request must contain a full description of the activity as to time, benefit, etc., in order to be considered. The decision as to whether such request should be allowed or denied and any conditions attached thereto shall be within the Dean's discretion. The Dean shall respond to all such requests in writing within **five (5) working days** from the date the request is received. All other individuals, organizations, agencies, or causes are prohibited from canvassing, selling, offering for sale, soliciting, or promoting the sale or advancement of any goods or services on any property which is owned, leased, or operated under the jurisdiction of the College.

Other Solicitations—No individual, agency, organization, or cause that desires to solicit on any property which is owned, leased, or operated under the jurisdiction of the College may engage in any such solicitation without first making a request in writing to the Office of the College President and then receiving written permission from the President or the President's designee. The request must contain a full description of the activity, material to be distributed, benefit, dates and time, etc., in order to be considered. The College President or the President's designee will mail a response to the request within **five (5) working days** from the date the request is received. If made in compliance with this policy, such requests to solicit shall be allowed, although the solicitations will be restricted by the President or the President's designee to a designated area on campus, and be limited to a maximum of two (2) hours per day, one (1) day per week on such days and at such times as are designated by the President or the President's designee. No sound amplification devices shall be permitted. The President or the President's designee may require that the party soliciting cease the solicitation and leave the property if the party soliciting uses language or techniques that would be considered offensive to persons of ordinary sensitivities or would have a tendency to incite a breach of the peace, if the party soliciting is overly loud or otherwise disruptive to classes or the normal administration or operation of the College, or if the party soliciting otherwise fails to comply with the College's solicitation policy. Gross, multiple, or continued violation of this solicitation policy may additionally result in the soliciting party's loss or suspension of future solicitation privileges on property which is owned, leased, or operated under the jurisdiction of the College. Any party adversely affected by a decision or determination of the College or any of the College's employees made pursuant to this policy shall have the right to appeal the decision or determination in accordance with the grievance procedure contained in the College's Student or Employee Handbook.

Visitors and Children on Campus

Visitors are always welcome to the campus. Visitors should register at the receptionist desk in Holding Hall so that information and directions can be given to make the visit a beneficial one. The College does not encourage non-official visits. Individuals who are loitering or who have not registered at the receptionist desk will be asked to leave the campus.

Under no circumstances will visitors be allowed in classrooms or laboratories at on- or off-campus sites without appropriate approval.

Children and any other persons not registered for a class are not allowed in laboratories or classrooms at any site unless authorized by the appropriate vice president. Children must not be left unattended in any area of the College. At community school sites, only persons attending college or school activities are permitted on the premises. Students who violate these regulations at any of Wake Tech's class locations will be subject to having their enrollment terminated.

Pets

Pets, such as but not limited to dogs and cats, create several conditions the College is not equipped to handle. Pets may carry and spread parasites. Pets of any type may not be brought on campus. This policy is in no way intended to restrict access to the campus of specifically trained animals to aid individuals with disabilities.

Telephone Calls

Public telephones are conveniently located on all campuses for students desiring to make telephone calls. Students are not permitted to use office telephones for personal calls.

Since the College does not have access to an intercom system or a messenger service, staff members will not deliver a message to a student unless it is determined to be an emergency. In an emergency, an individual who calls for a student must state the nature of the emergency; someone in Student Services will look up the student's schedule and attempt to contact him/her immediately.

Contact the Evening Dean's office for emergencies involving students attending evening classes.

Cell Phones

Students may not engage in any activity that is disruptive to orderly classroom instruction, without limitations to the use of cell phone or pager calls; students are therefore required to disengage all such devices when in a classroom.

Media Coverage of College Activities

As a public, tax-supported community college, Wake Technical Community College complies with public information law and works with news media to provide coverage of news about the College. Occasionally, media representatives may visit College classrooms to interview and photograph students.

The College welcomes these opportunities and respects the rights of students who may not wish to be interviewed or photographed. Students may be excused from classroom activities, without question, while photographs or video images are recorded.

Class Schedule Publications

Class schedules for upcoming terms are made available approximately two to three months prior to the start of the term.

- **On-line class schedules** are available on WebAdvisor at (<http://webadvisor.waketech.edu>). Printed copies of the class schedules are not prepared. However, students may choose to download the entire class schedules via a PDF on www.waketech.edu
- A "**Registration Guide**" booklet is available for enrolled and prospective students. This booklet is available on the Wake Tech website at www.waketech.edu and is also available on Main Campus, Health Sciences Campus, Adult Education Center, Western Wake Campus, community school sites, Wake County libraries, and most chambers of commerce.

Inclement Weather Schedule

Information regarding the closing of the College because of inclement weather will be announced on local radio and television stations and is posted on Wake Tech's website. In the event that bad weather occurs after the opening of the College, announcement of the dismissal of classes will come from the administrative officer in charge at that time.

When Inclement Weather Hits:

- If the College is **closed**, all classes at all sites are cancelled.
- If **evening classes are cancelled**, all classes at **all** sites are cancelled.
- If the **College is open** but Wake County Public Schools (WCPSS) are **closed**, Wake Tech classes scheduled at Wake County Public School sites are **cancelled**.
- Wake Tech classes scheduled at the following sites **will be held** even when classes at WCPSS sites are cancelled:
 - Main Campus
 - Health Sciences Campus
 - Adult Education Center
 - Western Wake Campus
- You can determine if your classes are cancelled by:
 - Checking the Wake Tech website www.waketech.edu
 - Calling the college switchboard at (919) 662-3400, or
 - **Check the local media stations (radio or television) for the latest information.**

Drug Abuse Prevention Program

The College has materials relating to drug abuse prevention available to all students, faculty, and staff. Interested individuals are encouraged to make use of the materials, which are located in the library on the Main Campus and the library on the Health Sciences Campus.

Emergency Exit Procedures

If the need should ever arise to evacuate a building because of fire or other impending danger, a general alarm will be sounded. When such an alarm is sounded, individuals should leave the building by way of the nearest exit. Individuals should become familiar with posted evacuation routes.

Smoking



Wake Technical Community College, in compliance with the Wake County Smoking Rules adopted June 23, 1993, by the Wake County Board of Health, does not allow smoking in any of its facilities. Smoking is allowed outside of buildings; however,

smokers are not to congregate near entrances to buildings and are required to deposit cigarette butts in the appropriate containers provided for this purpose. It is the responsibility of each student and employee to encourage individuals who smoke to do so only in those areas listed above.

Smoking at community school locations is prohibited by the Wake County Public School System. This includes buildings, school grounds, and parking lots.

Food and Beverages

Food and beverages are not permitted in classrooms, laboratories, shops, learning centers, libraries, or in any instructional area. All food is to be consumed in the cafeteria or vending machine areas. This policy applies at all Wake Tech campuses, community school locations, and other facilities.

Health and Safety

Insurance and Accidents

The College cannot assume the responsibility for injuries or losses sustained on or off campus by any student. Accident insurance is included in the Student Administration fee for all curriculum students.

All students covered by the insurance policy are responsible for reading the Student Accident Insurance Brochure (Policy) and following the claim procedures. After the accident has been reported and logged with campus security, the student may present a copy of any itemized medical bills to the Office of the Registrar, to receive an Accident Insurance Claim form. The Office of the Registrar will not release an Accident Insurance Claim form until notified via a copy of the accident report from campus security. The accident claim must be filed within 90 days of treatment for any injury.

The College requires each person enrolling in a Health Sciences curriculum to have student malpractice liability insurance coverage in the amount of \$1,000,000/\$3,000,000. This type of professional liability insurance may be purchased from most local insurance agencies or through a blanket liability insurance program at the College. Proof of coverage must be presented at the time of registration by providing the actual insurance policy or certification of insurance. In the absence of proof of coverage, students enrolled in a Health Sciences curriculum are required to purchase professional liability insurance through the College's blanket liability insurance program at the time of registration.

Students participating in sports activities are required to have accident insurance.

Program Responsibility

The responsibility for the organization, supervision, personnel training, and evaluation of an institutional program of health and safety has been assigned to the Facilities Engineer or her designee.

Notification of Accident

Notification procedures for all accidents involving students and visitors are as follows:

- Students and visitors should notify campus security of all accidents that occur on any Wake Technical Community College campus facility.

- Campus security will complete an incident report for all accidents and forward documentation to the appropriate service areas for accident insurance, facility maintenance, etc.

First Aid

The College has first-aid kits in appropriate locations throughout the various facilities.

Administering of First Aid

From time to time students, employees, or visitors could be injured during the course of regular College activities. In the event of minor scratches and skinned areas, employees of the College who are responsible for the areas in which the first aid kits are located can administer first aid. Only the supplies in the kits should be used, and in no circumstances should any medication be provided for oral consumption. If no first aid kit is available contact security and they will administer first aid.

When persons are injured more severely, 911 should be called and then contact campus security at 866-5911. Campus security will come to assist the injured person and set up for the arrival of emergency medical personnel. Security will fill out an incident report and forward to the Security Manager for appropriate action to be taken.

Students attending the Health Sciences Campus should contact the receptionist at 231-4500 (HEB). The receptionist will locate the Security Officer on duty.

The decision to call the rescue squad or other medical personnel rests with the Facilities Engineer or her designee and the injured party. The College will make appropriate telephone calls in an effort to

arrange transportation for the sick or injured student, employee, or visitor. The College will not transport nor will it assume the responsibility for transporting a sick or injured person.

Transportation

Wake Technical Community College provides bus service for students between downtown Raleigh and the Main Campus. A schedule can be obtained from the receptionist in Holding Hall, the receptionist in Student Services, or a coordinator in the Individualized Learning Center.

Lost and Found

The College's "Lost and Found" depository is located in the in the Student Services Building, Room 121F.

Skate Boarding/Roller Skating

Skate boarding and roller skating are not allowed on the Wake Technical Community College campus and/or its rented facilities.

Student Photo ID

It is important that every curriculum student on the Main, Western Wake, Health Sciences, and North Campuses receive and have with them at all times the Wake Technical Community College Student ID.

ID's will be required for student's use of the Student Lounge, ILC, Library, and certain Continuing Education classes. Student IDs may be obtained on the Main and Health Science Campuses. Hours of operation are 8:00 a.m. to 5:00 p.m., Monday through Friday.

The initial Student ID will be free while a duplicate ID will be issued for \$5.00.

Facilities

Use of Campus Facilities

Students have a right to use all of the resources and facilities of the College during normal operating hours with the proper authorization. Students may not utilize the resources or the facilities of the College after hours without prior official approval and without faculty supervision. The security personnel must be notified under these unusual circumstances.

Off-Campus Sites

Many credit and non-credit courses are scheduled at community schools and other locations county-wide. **All rules and regulations of Wake Technical Community College apply at off-campus sites in addition to any rules and regulations specified by those sites.**

The News and Observer Adult Education Center

The Basic Skills program is housed in The News and Observer Adult Education Center located at 1920 Capital Boulevard, Raleigh. Basic Skills is designed primarily to help adults learn to read; improve math, reading, and writing skills; earn a high school or GED diploma; and learn English as a second language.

The Basic Skills program is also designed to help underemployed/unemployed persons prepare for employment or further education, developmentally disabled persons achieve their potential, and families strengthen literacy skills and family bonds.

No tuition is charged; however, books and supply charges may apply.

Basic Skills classes are offered at community sites as well as the Main Campus and the Adult Education Center. Placement and orientation for community classes are conducted at the class site. To pre-register for classes on the Main Campus, call the Individualized Learning Center at (919) 866-5276.

To schedule an appointment for the Adult Education Center or to learn more about Basic Skills programs and their locations, individuals should call the Adult Education Center, 715-3434.

Business and Industry Center at Western Wake Campus

3434 Kildaire Farm Road, Cary, NC,
or call (919) 335-1000

The Business and Industry Services Division provides customized employee training for area businesses. Training can be designed for industrial, clerical, supervisory and management occupations. It includes the following areas:

Apprenticeship - Customized apprenticeship programs in various trades

Professional Development and Corporate Training - Personal development programs customized to meet the needs of participating businesses and individuals

Focused Industrial Training - Technical knowledge, job upgrading or other on-site skill training for small groups of workers

New and Expanding Industry - Cooperative program with new and expanding industries in the area, with the purpose of providing a supply of trained personnel

Small Business Center - Technical and managerial assistance to prospective and current business owners and operators through a variety of seminars, study courses and one-on-one assistance

Student Centers

The Student Center on the Main Campus is located in the Student Services Building, Room 121. The Center houses T.V. recreation areas, Lost and Found, and the Student Photo ID Office (SS121F).

The Student Center on the Health Sciences Campus is located in the Health Sciences building. The center houses a food service (vending machine) area, TV area, and study and lounge areas.

The operational policies are posted on the bulletin boards at both centers.

Information Technology Services

The mission of **Information Technology Services** at Wake Technical Community College is to support Student Learning, Faculty Teaching, and College Operations through the use of Information Technology.

Information Technology Services is located in Room 116 of the Pucher-LeMay Building. Hours of operation are 7:30 a.m. to 10 p.m., Monday through Friday; and 7:30 a.m. to 5 p.m. on Saturday.

The College makes every effort to provide state-of-the-art hardware and software for students to use. No smoking, eating, or drinking is allowed in the computer labs. Students should conduct themselves professionally at all times. To insure quality service, students should report any problems immediately to their instructor.

Wake Tech Internet Policy

At Wake Technical Community College, Information Technology Services has provided equipment and access for students, faculty, and staff to connect to the Internet. The College wants the internet to be an effective resource that adheres to the mission of the College. Users of Wake Tech's computer services are expected to abide by the following policies, which are intended to preserve the utility of the system, to protect the privacy and work of students, faculty, and staff, and to preserve the right to access the international networks to which the College systems are connected.

General Usage Policy

1. Faculty, staff, and students with permission from College officials may use the College's computing facilities for scholarly purposes and official College business so long as such use does not violate any laws or College policy and does not result in commercial gain or private profit.
2. The College prohibits accessing internet services that do not further educational interests. This specifically includes, but is not limited to, subjects pertaining to pornography. Accessing or distributing pornographic materials is a violation of this policy that will result in disciplinary action, up to and including, termination or expulsion.
3. Use of electronic mail and other network communications facilities to harass, offend, or invade the privacy of other users of the network is prohibited. The College reserves the right to access files that it has reason to believe violate College policy. Data, including email stored on College systems, is the property of the College.
4. Students are not permitted to use the College's name or any association with the College in websites they create. Faculty and staff members are not permitted to use the College's name or any association with the College in websites they create that reflect negatively on the College or violate any of the policies contained herein.
5. Violation of any of the above provisions will result in disciplinary action, up to and including termination or expulsion.

To report a problem in a computer lab, please go to <http://helpdesk.waketech.edu> and enter a service request, or call 866-7000 to speak to someone at the Wake Tech Help Desk. If you are on campus, you can reach the Help Desk by dialing extension 357.

Instructional Technology Department

The department provides media services to Wake Technical Community College administration and instructors on all campuses and at community schools locations.

Audiovisual equipment can only be checked out by an instructor of the College and other authorized College personnel.

Students requiring any audiovisual services must make arrangements through their instructors with the approval of their department head. The department supports telecommunications via a down-link satellite receiving station for teleconferences and telecourses.

Instructors frequently use the audiovisual studio to improve communications, advertising, and sales skills of their students. The audiovisual department hours are Monday through Friday, from 7:30 a.m. to 5:00 p.m. For assistance with audio-visual requests, please submit a work order with the Wake Tech Helpdesk. This can be done online at <http://helpdesk.waketech.edu>

Bookstore

www.waketechbookstore.com

***Students are encouraged
to take advantage of online ordering
and home delivery.***

Students may purchase from the College Bookstore necessary books, supplies, and other items such as stationery, aspirin, class rings, and pins. Normal hours of operation are Monday - Thursday, 8 a.m. - 8 p.m., and Friday, 8 a.m. - 4:30 p.m. Special hours of operation are posted on the Bookstore door as needed.

Students should be aware of the following operational policies of the Bookstore:

Required textbooks for a particular term are available through the drop/add period. Immediately following the tenth academic day of a semester, most of the unsold books are returned to the publishers.

Cash refunds for returned books will only be authorized with presentation of the Bookstore cash register receipt. Books returned for refund must be new and in undamaged condition containing no writing or marks. Requests for refund for books must be made during the first ten academic days of the semester.

A special order for a book may be placed through the Bookstore by furnishing the title, author, edition, and publisher of the book. A cash deposit is required. The book must be purchased within 30 days after being received by the Bookstore or the deposit is forfeited. Students may purchase books online at www.waketech.edu. Select the "Student Resources" link.

Libraries

Wake Technical Community College operates two libraries, as well as providing student resources through a library website at <http://library.waketech.edu>.

Combined resources for these libraries include over 75,000 books, 500 periodical subscriptions, 7,000 audio-visual items, and access to a variety of databases, including the state consortium NC Live. The use of library resources requires registration with the library: students must present a valid student ID card; Wake County residents must show a valid driver's license. Reference materials, reserves, periodicals, and newspapers are restricted to library use only.

Both libraries have coin-operated copiers.

Howell Library has seating for more than 300 people and offers group study rooms, a media center, and an assistive technology room equipped for various needs. Howell Library also has over 40 computers available for education and research purposes, as well as a classroom training area and a collection of maps and atlases, some available for checkout.

The Health Sciences Library has seating for over 100 people and includes 25 computers for educational and research purposes, including a lab for instructional activities. The library also has audio-visual viewing equipment for use with its video collection as well as a collection of anatomical models.

Librarians and staff are on duty to assist with reference or research needs and to answer general questions. If you need assistance or have questions about finding, accessing, or using resources, please see a library staff member.

The library website is a portal for information and resources, including the online catalog, access to NC Live and NC Knows (virtual reference), subject guides, and links to other useful resources in specific subject areas. Also available on the website are library statistics and hours of operation and information about reserve books, tutorials, and distance learning.

The libraries may be contacted at 866-5644 (Howell Library) or 212-3836 (Health Sciences Library).

Individualized Learning Center

Services are available at Main Campus, Health Science Campus, and on-line for Distance Learning tutorials.

The Individualized Learning Center (ILC) offers study opportunities geared to an individual's personal needs or interests that include:

- One-on-one tutoring
- On-line support for distance learning students
- Computer-assisted instruction
- Videocassettes, programmed texts
- instructor-directed workshops

ILC services are free, and any Wake Tech student or employee may use the center at his or her convenience. All users must complete a data form and use the timekeeping system.

The **Skills Centers** are designed to offer support services to curriculum students. Instructors can refer students to the Computer Center, the Math Center, the Study Skills Center, the Foreign Language Help Center, or the Writing Center for tutorial assistance.

The **Computer Center** offers assistance with word processing, keyboarding, Windows applications, programming, web designs, and other course-related software. Videos, tutorial, books and basic user guides are available for student use. The Computer Center offers workshops for Windows and word processing. Instructors can also request introductory tours.

The **Math Center** offers tutorial assistance for students taking traditional math classes, chemistry, physics, or any class with a math component. The Math Center also has computers, videos, slide and cassette programs, books, and other supplementary materials for student use. Excel, TI-84Plus, TI-86, and TI-89 calculator workshops are offered each semester.

The **Study Skills Center** offers one-on-one tutoring and a variety of workshops and videos which focus on three major areas: identifying individual learning styles, improving study skills, and improving reading skills. The center supports all curricula at Wake Tech.

The **Foreign Language Help Center** opened in August 2005 and provides one on one tutoring and resources to support French and Spanish courses. In addition to tutoring, the Center offers workshops, dictionaries, guided study groups, oral practice, assistance with compositions and oral presentations, and handouts and worksheets for additional grammar, vocabulary, oral, and written practice.

The **Writing Center** stresses an across-the-curriculum philosophy. Tutorials are conducted on a one-on-one basis with the student's writing serving as the focal point of discussion. In addition, the Writing Center offers workshops on grammar, the writing process, documentation, and literary analysis; online help to students enrolled in distance education courses; and revision assistance to students writing at the computer. Walk-in appointments are available morning and early afternoon hours; appointments may be reserved for evenings and Saturdays.

The goal of the **Basic Skills Center** is to assist students in improving fundamental skills that lead toward mastery and achievement of its program goals. Ability to benefit from the program is a prerequisite for entering and continuing in the program. The **ABE/GED preparation** program is designed to assist adults who want to learn reading, writing, math (Adult Basic Education), and/or who want to complete a high school equivalency (GED) diploma. Instruction is individualized and materials are self-paced. Students may enroll at any time. Those under age 19 must provide special paperwork and students must attend a placement test session.

Basic Skills/GED Program Hours:

Day: Monday – Friday
9 a.m. – 2 p.m.
Evening: Monday, Tuesday, Thursday
5 p.m. – 9 p.m.

Additional Services are available in the ILC. Please inquire ahead to receive information on how to take advantage of these services:

- Admission preparation for students desiring to prepare for the Wake Tech placement tests
- Basic algebra and chemistry to meet Wake Tech entrance requirements
- Basic mathematics, algebra, intermediate algebra, college algebra, and trigonometry videos

ILC locations and hours of operation:

**401 S Campus:
Room 113
Individualized Learning
Center Building
(formerly ETA Bldg)**

Monday – Thursday
8 a.m. – 9 p.m.
Friday
8 a.m. – 5 p.m.
Saturday
9 a.m. – 1 p.m.

Telephone
866-5276

**Health Science Campus:
Suite 203 – Health
Science Annex**

Tuesday – Thursday
12 – 6 p.m.

Telephone
250-4241

**Hours may vary within each skills center. Please call
ahead to check availability.**

ILC website: <http://ilc.waketech.edu>

ILC Distance Learning Website: <http://ilc.waketech.edu>

English as a Foreign Language

The English as a Foreign Language (EFL) department offers academic English courses designed for individuals whose native language is not English and who wish to study at the college and university level in the United States. These courses comprise an intensive English language program that focuses on language for academic purposes; courses are offered on four proficiency levels in grammar, composition, reading, and listening/speaking.

This program meets the requirements for those students who have a student visa. Prospective students who wish to obtain a student visa should go to the International Student website at <http://international.waketech.edu>. Tuition is the same rate as for any other curriculum class offered at the college. The EFL office is located in the Technical Education Building, Room 109. Prospective students can call 866-5426 for more information.

The EFL department also offers supplemental instruction through its EFL Lab, where there are materials for self-study, individual tutoring, and small group work. Students needing additional assistance in their non-EFL classes are also encouraged to seek help in the lab; workshops on a variety of topics are offered periodically. Multi-level materials focus on listening comprehension and pronunciation, and a limited number of instructional software packages are available in the computer area of the lab.

Students in EFL and foreign language classes can also benefit from the Conversation Partners Program that is sponsored through the lab. The academic EFL Lab is located in the Technical Education Building, Room 110, on the Main Campus. Basic Skills English as a Second Language classes are offered through The News and Observer Adult Education Center at 1920 Capital Boulevard, Raleigh, NC.

Housing

The College does not have housing facilities, but students should have no difficulty in locating satisfactory housing. Some places provide room and board at moderate rates. Students and landlords should have a complete understanding with regard to rental conditions so that there will be no misunderstanding concerning such details.

Distance Education

Wake Technical Community College offers students three options for distance education instruction: Internet courses, hybrid courses, and telecourses. These alternatives to traditional seated classes allow students to take courses at times convenient to their schedules. Each course is facilitated by a qualified, competent instructor who develops the course so that the learning outcomes are comparable to a traditional seated class, who serves as a resource to the students, and who provides a syllabus and course guidelines. Costs and credits earned are the same as on-campus courses, and students have access to equivalent services and resources. Students interested in taking a distance education course should go to the College's website, www.waketech.edu, and click on the "Distance Education" link.

Internet Courses

Students registered for Internet courses may be offered the opportunity to attend an orientation or other meeting at the College, but generally the subject matter is presented online and distributed through the College's Blackboard server, <http://dist-ed.waketech.edu>. Students must have an e-mail account and access to a personal computer with an Internet connection and browser software. Wake Tech faculty develop and teach online courses.

Before enrolling in an Internet course, students should:

1. Preview the Internet course, <http://DistanceEd.waketech.edu/preview.htm>
2. Participate in the online student orientation, <http://DistanceEd.waketech.edu/internet/orientation.html>
3. Take the self-assessment entitled "Are You Prepared for an Online Course?"; and
4. Review the frequently-asked questions on the distance education website, <http://DistanceEd.waketech.edu>

Hybrid Courses

Hybrid courses combine regular classroom meetings with Internet instruction, reducing the number of hours a class meets on campus during the semester. The instructor determines the class schedule, which is published in print and online. Students must have an e-mail account and access to a personal computer with an Internet connection and browser software.

Before enrolling in a hybrid course, students should:

1. Preview the hybrid course, <http://DistanceEd.waketech.edu/preview.htm>; and
2. Review the online student information posted on the distance education website, <http://DistanceEd.waketech.edu/>.

Telecourses

Instruction for telecourses is offered via videocassettes, which students view at a time and location of their choosing; they are, however, required to attend a certain number of on-campus meetings as indicated by the instructor, including an orientation. In addition, exams are taken in the Distance Education Testing Center on the main campus during a time period specified by the instructor. Telecourse videos are obtained from commercial producers.

At the beginning of each semester, students are loaned a complete set of telecourse tapes and are required to sign an agreement indicating their understanding of the charges for tapes that are not returned at the end of the semester. Students are charged a fee of \$5 per tape for any missing tapes (\$65 for the entire set) and registration will be blocked until either the tapes are returned to the College or the fine is paid in full.

Before enrolling in a telecourse, students should;

1. Read the telecourse information at <http://DistanceEd.waketech.edu/tele/info.html>
2. Take the self-assessment entitled "Are You Prepared for a Telecourse?"; and
3. Review the frequently-asked questions on the distance education website, <http://DistanceEd.waketech.edu>.

Testing Center

Telecourse and online instructors may require students to take tests on the main campus. The Distance Education Testing Center is located in Room 15 of the Library Education Building. Hours are posted online at <http://DistanceEd.waketech.edu/testcnt.html> or students may call (919) 866-5618.

Library Resources

To maintain a sound-learning environment, students enrolled in distance education courses have access to the Howell Library on the main campus and the Health Sciences Library on Sunnybrook Road near Wake Medical Center. Although traditional library services are available to all students, the College has expanded its services to accommodate distance learning. The library's website, <http://library.waketech.edu> is available to on-campus, off-campus, and distance education students. The website provides information on interlibrary loans, loan periods, hours of operation, and electronic and print databases. The website has links that provide access to other libraries, resources, search engines, and services such as NC LIVE.

Academic Information

Counseling

Counseling Services provides academic, personal, and career development services designed to promote student success and progress toward attainment of educational goals. Professional staff work closely with students to strengthen decision-making, critical thinking, goal setting, and other skills that empower students to achieve their potential and be responsible for their own success. Counselors coach students in setting a career path, defining a plan of study, and selecting initial courses appropriate for fulfilling their academic objectives. They are also available to counsel students regarding academic pressures, stress or frustration, adjustment concerns, and other social or personal matters. Additionally, counselors may make referrals when necessary to appropriate resources.

Counselors assist students in developing the strategies, attitudes, and discipline needed to make or maintain satisfactory progress in academic coursework and toward achievement of goals. In individual conferences, group settings or classroom workshops, counseling staff present information and conduct activities designed to maximize retention and student success. Workshops offered include, but are not limited to, topics on stress management, time management, test anxiety, career interest and preparation, relationship-building and practical college survival strategies.

Hours of operation are 8 a.m. to 5 p.m., Monday through Friday. Evenings are available by appointment.

Faculty Advising

The purpose of the faculty advising system is to help provide the most effective, helpful educational environment possible. Every curriculum student is assigned a faculty advisor. Students in the A.A. or A.S. College/University Transfer programs are assigned to the College/University Transfer Advising Center. All other students who place into Pre-Curriculum courses are assigned to the Pre-Curriculum Advising Center. The advisors are available to students through regularly scheduled office hours to counsel students concerning problems they may have. Students have the responsibility for planning their programs of study with the help of their faculty advisor. This involves (1) keeping up to date with College and division curriculum requirements; (2) keeping informed of academic deadlines and changes in academic policies; and (3) consulting with the faculty advisor at each pre-registration period and at other times as needed.

Career Center

Career Center counselors provide assistance to Wake Tech students in defining goals and establishing a career path. Enrolled students may receive guidance in self-discovery, exploring and evaluating career options, and planning educational programs that reflect their interests or career goals.

The Career Center provides an educational setting for students who wish to enhance their understanding of career trends in today's labor market. A valuable resource room, it contains useful reference materials that include The Occupational Outlook Handbook, The ONET, The Complete Guide for Occupational Exploration, Vocational Biographies, state and national career guides, as well as a variety of career videos and websites. Occupational computer software includes the Internet, NC Careers, Sigi 3, and Discover. Catalogs, applications, and videos highlighting senior institutions are also available. Students may also access all career development services through our interactive web pages at <http://counseling.waketech.edu>.

Hours of operation are 8:00 a.m. to 5:00 p.m. Monday through Friday and evenings by appointment.

Photo ID

It is important that all curriculum students on the Main, Western Wake, Health Sciences, and North Campuses obtain and carry at all times their Wake Technical Community College Student ID. IDs will be required in order for students to use the Student Lounge, ILC, Library, and certain Continuing Education classes. Student IDs may be obtained on the Main and Health Science Campuses, between 8:00 a.m. and 5:00 p.m., Monday through Friday. The initial Student ID will be free; a duplicate ID can be obtained for \$5.00.

Disability Support Services

The mission of Disability Support Services (DSS) is to adapt the College's general services to the specialized, individual needs of otherwise qualified students with disabilities, for the purpose of providing equal access to all programs and facilities.

Consistent with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, Wake Technical Community College is committed to equality of educational opportunity and ensures that no qualified person shall by reason of a disability be denied access to, participation in, or the benefits of any program or activity operated by the College. Each qualified person shall receive reasonable accommodations to ensure equal access to educational opportunities, programs, and activities in the most integrated setting appropriate.

Students requesting disability accommodations from the College must self-identify to Disability Support Services. Students are required to submit current documentation of their disability to DSS to determine eligibility prior to the implementation of services. Students requesting accommodations from the College must have a disability as defined by Section 504 and the ADA. Self-identification and providing documentation can be initiated at any time; however, the student must allow reasonable time for accommodations to be implemented.

To obtain additional information or to request documentation guidelines and/or DSS Policies and Procedures, please contact the DSS office at (919) 866-5670 (TTY 779-0668).

Cooperative Education Program

Wake Technical Community College was the first college in North Carolina to offer its students the benefit of participation in Cooperative Education. Wake Tech students have enjoyed this extra benefit since 1966. Students who graduate from curricula that offer the cooperative education component begin their job search with several months of work experience in addition to their degree. In a highly competitive job market, an associate degree or a diploma plus actual work experience related to the chosen curriculum is highly desirable and gives the Wake Tech graduate an advantage over other job applicants.

Because of the intrinsic value of Cooperative Education for the student, Wake Tech requires participation in Cooperative Education in many of its technical and vocational curricula. The College reserves the right to implement, change, or discontinue the Cooperative Education component in any of its curricula.

To become eligible for Cooperative Education, students must meet the following criteria:

- Be enrolled in one of the A.A.S. degree or Diploma programs approved for Cooperative Education credit.
- Be recommended in writing by the student's faculty advisor.
- Satisfactorily complete the equivalent of one semester with 14 semester-hour credits at Wake Technical Community College of the major curriculum (unless otherwise specified by the program).
- Apply for participation with the Co-op office.
- Maintain a grade-point average of 2.0 or better. Students enrolled in the degree or diploma Early Childhood Associate curricula must maintain a 2.5 GPA. Students who have a low GPA or have not completed the required number of courses will not be accepted for Co-op. After improving his/her grade-point average and/or completing the required courses, a student may re-apply for Co-op.
- Attend seminars or scheduled meetings conducted by the Cooperative Education staff.
- Demonstrate satisfactory personal appearance, attitude, and the ability to work.

- Meet standard health requirements for any Co-op job.
- Be legally authorized to work in the United States. Students should be prepared to produce a social security card, a birth certificate, and/or a driver's license.
- Certain academic programs may have additional specific requirements for eligibility.
- Meet employer requirements before starting work experience which may include background and credit checks, and drug testing.

Additionally, whether or not a student is eligible to be placed in a co-op job will be determined by the Coordinator of Cooperative Education, based upon selected criteria such as the student's prior work experience, academic performance, attitude, appearance, health, and position availability. Once the determination has been made that the student is eligible for a co-op placement, it will be necessary for the student to satisfactorily complete all co-op orientation sessions, seminars, and assignments in order to graduate. After determination of co-op eligibility, the student will begin the process of interviewing with employers for a co-op job. Every effort is made to place all eligible students in a co-op job; however, job placement cannot be guaranteed.

The program is designed to be as flexible as possible to accommodate individual career plans. Students may choose from among several methods to conduct their work experience depending on employer's needs. Those plans include part-time and full-time work assignments.

Cooperative education is required for graduation in many of the curricula that offer it as a component. In some cases, cooperative education credit may be applied to satisfy electives or other requirements.

By its name, "Cooperative Education" is an activity involving the cooperation of Wake Technical Community College, Wake Tech students, and participating businesses and industries. Therefore, the program is managed through the utilization of certain guidelines and procedures to which all parties must subscribe. The benefits of cooperative education are numerous:

Benefits to Student

- Increases motivation
- Relates theory to practice
- Participates in the work world
- Relates abilities and interest to actual work
- Acquires occupational information
- Develops understanding of human relations
- Earns an income (earnings vary with job and employer)
- Acquires valuable job experience (usually means a higher starting salary)
- Develops sense of responsibility
- Acquires increased maturity
- Graduates with classmates
- Acquisition of Job Search Skills (resume preparation, interviewing skills, etc.)

Benefits to Employer

- Reduces training costs
- Reduces recruiting costs
- Increases performance as a permanent employee
- Improves employee retention
- Provides recruiting pool of experienced graduates
- Provides opportunities for employer input to College programs

Job Placement

The Job Placement Office assists students in seeking full-time, permanent employment upon graduation, as well as finding part-time, temporary employment while they attend school. Job development within each curriculum is promoted at Wake Tech as an ongoing function. The services provided by the Job Placement Office are available to any curriculum student currently enrolled at Wake Tech and to all graduates within the last five years. The Job Placement Office coordinates all on-campus job/military recruiting. The College does not guarantee employment to any student or employees to any employer. There is no charge to industry or to students for placement services.

International Students

The International Student Office assists international student applicants who wish to apply for a student (F-1) visa or other non-immigrant visa holders who want to convert to F-1 status. It also provides on-going assistance for F-1 visa students in their communication with the Citizenship and Immigration Services (CIS), including but not limited to: application for appropriate employment authorization, extension of I-20 expiration date, transferring an I-20 to another college or university, travel abroad, and re-entry procedures and documentation of F-1 status. In addition, international students may seek advice and referral information on all aspects of living and studying in the United States. All international (F-1) students are required by CIS regulations to have a current record of their local and foreign addresses on file with the College.

Special Students

Special students are those who are enrolled in one or more curriculum courses, but are not working toward a degree, diploma, or certificate. Special students must meet all course prerequisites or receive approval from the instructor before registering for a course.

Special students who decide to earn a degree, diploma, or certificate must complete the admissions requirements for regular students. They should declare a major prior to completing 16 credit hours in a specific program.

Advanced Standing

Transfer of Credits

Wake Technical Community College will consider, for transfer credit, courses from other colleges or collegiate institutions accredited by a commission whose responsibility is accrediting degree-granting institutions classified as collegiate, and be a commission housed in a regionally accrediting agency. Only those courses with a grade of "C" or higher will be considered for transfer credit and must be equivalent in content and credit hours to the course(s) within the curriculum that the student is entering. Transcripts from accredited institutions will be reviewed and transfer credit recommended by the Enrollment and Records Services Division, as directed by the curriculum education deans. The decisions as to whether any transfer credit will be allowed, and if so, how much transfer credit will be allowed and how such transfer credit will be applied, are discretionary on the part of the College. The College will determine whether to award credit for courses taken three or more years prior to transferring to Wake Technical Community College.

Challenge Examinations

Students seeking credit for non-transferable learning experiences for any course, except College/University Transfer and Pre-Curriculum, may request a challenge examination. Subject matter for which credit is sought must be equivalent to the course(s) being challenged. Challenge examination requests will not be accepted for incomplete or failed course work. Requests must be made with full justification to the division dean or dean's designee. Students who successfully challenge a course will receive credit for the course with a grade of "X." The course will not enter into grade-point average computations, but will count toward the total hours earned.

Students must register and pay tuition for courses to be challenged and must submit requests for challenge examinations after registering for the course(s) to be challenged. In order to get credit on the transcript record, it is necessary to remain registered for a class that has been challenged successfully. ENG 111, 112, 113, and 114, and all other College/University Transfer courses may not be challenged; instead, students may take the appropriate CLEP, AP, or DAN TES exam.

FRENCH AND SPANISH NATIVE SPEAKERS ARE NOT ELIGIBLE TO RECEIVE CREDIT FOR 100 LEVEL FOREIGN LANGUAGE CLASSES

Students who think that their language skills will earn them credit for more than one course and want to get as much credit as quickly as possible should take the CLEP exam. For specific information on CLEP testing, please visit the web site for www.collegeboard.com

Students may take the Language Placement Exam in a given foreign language only once. They may not take the test once they are taking or have taken a foreign language course at Wake Tech. If a student believes he/she may have been placed into a too low or high level class, he/she needs to contact Melania Aguirre-Rabon, Foreign Language Department Head, PLM 204H, miaguirr@waketech.edu

Foreign language faculty reserve the right to request that a student take the Language Placement Exam.

Inasmuch as some divisions have adopted more restrictive challenge examination procedures, students should make every effort to start the challenge examination process as soon as they register for the course(s). Students must take all challenge examinations no later than the 10-percent point of the semester or term. Students may obtain information on the results of their examination by inquiring at the Enrollment and Records Services Division. Positive photo identification will be required. Results of challenge examinations will be mailed after the exams have been graded and results forwarded to the Enrollment and Records Services Division.

Most challenge exams are administered within the appropriate department, however, a select number of courses including BUS 110, 121, 137, 147, 153; ENG 101; MAT 070, 080; PSY 101, 110, and 118 may be taken in the Individualized Learning Center (ILC) on main campus.

Students challenging these select courses must obtain approval from the Division Dean and contact the ILC (866-5276) to schedule an appointment to take the exam. Both the Division Dean approved form # 610 and student photo identification is required for ILC administered challenge exams.

AARTS (Army/ACE Registry Transcript System)

The AARTS transcript is an American Council on Education approved method of presenting military experience for academic credit. Students possessing an AARTS transcript for military educational experience after 1981 may submit the transcript for credit evaluation in any program except College/University Transfer and Health Sciences. In order to obtain a copy of their AARTS transcript, students may write: Manager, AARTS Operations Center, Ft. Leavenworth, KS 66027-5073.

Advanced Placement (AP) Credit

The College Entrance Examination Board (CEEB) sponsors an advanced placement program that enables high school students to complete college-level courses while still in high school, to demonstrate college-level achievement through examinations, and to receive college course credit when they matriculate to an institution of higher education. The CEEB examinations are offered in the high schools by the Educational Testing Service (ETS).

Carolinas Associated General Contractors Articulation Agreement

Articulation is the delineated process that awards college credit for certain courses completed elsewhere. The college will award college credit for specific CAGC training courses in partial fulfillment of program requirements leading to an Associate in Applied Science degree, diploma or certificate in Construction management Technology. Official transcripts will be reviewed and transfer credit recommended by the appropriate academic division deans.

Certified Professional Secretary® (CPS®) and Certified Administrative Professional® (CAP®) Credentials

Students applying for entry into Office Systems Technology (A25360), Office Systems Technology/Legal (A2536A), Medical Office Administration (A25310), Business Administration (A25120), and Business Administration/Human Resources Management (A2512C) and Business Administration/Electronic Commerce (A2512I) will be granted credit for some courses upon showing proof of having earned the CAP or CPS rating within the past six years. Additional credits in keyboarding, word processing, spreadsheets, databases, business presentations, and computer literacy may be earned at Wake Tech based on the successful completion of challenge exams in these skill areas.

College Level Examination Program (CLEP) Credit

CLEP is a program that offers the student the opportunity to earn college credit for knowledge acquired outside the conventional classroom. College-level competency may have been acquired through personal reading, formal study, job experience, non-credit course work, television-taped courses, correspondence courses, military training, adult courses, and advanced studies in high school. For information regarding the CLEP Testing Program, contact the College Board at www.collegeboard.com/clep.

DANTES Standardized Subject Tests (DSST)

The DANTES Program (Defense Activity for Nontraditional Education Support) is a testing service conducted by Educational Testing Service (ETS). DANTES, an agency of the Department of Defense, was created to help service members obtain credit for knowledge and skills acquired through nontraditional educational experiences. Since World War II, DANTES has sponsored and administered tests that provide qualified military personnel with the opportunity to obtain academic credit. DANTES Subject Standardized Tests provide a way for military personnel to obtain credit by examination for knowledge of material commonly taught in college courses.

Dental Hygiene Program

Advanced standing is considered for students enrolled in the Dental Hygiene program if they previously have attended a Dental Assisting or Dental Hygiene program accredited by the American Dental Association, Commission on Dental Accreditation (ADA, CDA). Direct credit may be granted or a challenge exam taken for select courses within the program. More specific criteria are noted within the department's student handbook, which is provided once admitted to the program.

Emergency Medical Science Advanced Placement through Certification

Students may receive advanced standing in the EMS prefix classes through certification. Other EMS courses may be challenged by the student based on experience at the discretion of the EMS Department Head. The student must score 78 percent or better to receive challenge credit. Challenges of EMS courses to gain higher certification are not allowed.

Associate Degree Nursing

Advanced Placement for LPNs

Students may receive advanced standing in the Associate Degree Nursing program by holding a current unrestricted license to practice nursing as a practical nurse in North Carolina. Students are required to take Nursing Assessment, NUR 133, prior to enrollment in the NUR course sequence. Students are advanced to 3rd term in the Program of Study. All prerequisite courses for 3rd term must be completed with a grade of C or better to be advanced placed. Below is a basic guide for advanced placement for the student with a current unrestricted LPN license. Students should contact the Admissions Department and the Associate Degree Nursing Department Head for questions about advanced placement.

Navy Articulation Agreement

Articulation is a delineated process that awards college credit for certain courses completed elsewhere. Per the Articulation Agreement between Wake Technical Community College and the United States Navy, Wake Technical Community College will award college credit for specific Naval training courses in partial fulfillment of program requirements leading to an Associate in Applied Science degree in Industrial Systems Technology. Completion of both portions of the college coursework – preliminary studies at Wake Technical Community College and success through formal Navy Training curricula and job experience, as accredited by the American Council on Education (ACE), is required before the student is eligible to receive the associate degree from Wake Technical Community College.

Veterans Educational Benefits (G.I. Bill)

Most of the programs offered by the College are approved for training veteran students, Ready Reservists, North Carolina National Guard members, and the spouses and children of deceased or 100-percent disabled veterans. Veterans desiring to train using the benefits of the G.I. Bill must first establish their eligibility with the Department of Veterans Affairs (VA). Veterans separated from service within the last ten years who hold an Honorable Discharge usually qualify for G.I. Bill training. In general, 36 months of full-time training is provided.

Certain military personnel on active duty are also eligible for schooling under the G.I. Bill. Interested servicepersons should contact their duty station Education Officer for details prior to applying for admission to the College.

Veterans attending Wake Technical Community College under the G.I. Bill receive a monthly reimbursement from the Department of Veterans Affairs. The course load taken determines the amount; for example, to receive the full VA benefit, the veteran must be enrolled for a minimum of 12 credit hours. A veteran carrying half a full-time course load would receive half the benefit. Veterans should contact the College VA certifying official (Registrar) for detailed information.

Veterans are accorded the same rights and must meet all academic requirements and maintain the same academic standards as any student attending Wake Technical Community College. Veterans will not be certified to the VA until all entrance/admissions criteria, including high school and college (if applicable) official transcripts, are in the student's file. All transfer credit from prior college experience that has been evaluated and granted must also be on file.

Veterans must meet the grade-point average (GPA) standards established in "Academic Probation and Suspension." A veteran failing to meet GPA standards at the end of a term will be placed on academic probation. A veteran failing to meet the GPA standards at the end of the next term in attendance will have his enrollment certification to the VA terminated. Certification of enrollment to the VA will not be restored until GPA standards are met, and then only upon request by the veteran.

Veterans dropped from a course by the College for missing all scheduled class meetings in any ten consecutive academic day period will be immediately reported to the VA, and adjustments, as appropriate, will be made in G.I. Bill payments.

Policy for Veterans to Enroll in Non-Traditional Study Courses Such as Telecourses, Internet, Videocassette, and Independent Study

- In order to maintain a high quality of educational and academic excellence, all VA students receiving educational benefits from the Department of Veterans Affairs will meet the following criteria before enrolling in non-traditional course(s).
- The veteran must first meet with the VA certifying official before registration, so that proper information and procedures can be discussed.
- The veteran should review the Distance Education Student Self-Assessment on the Wake Tech website or in the class schedules publication to determine if he/she is suited to this style of learning.
- The veteran must have completed any remedial work needed as determined by the College's placement test.
- The course must be required in the veteran's current program.
- The veteran must pass each non-traditional course attempted in order to enroll in a subsequent study course.

No additional charge is required for enrolling in non-traditional course(s).

Clinical Assignment Policy

It is the policy of Wake Technical Community College that no student engaged in a Health Sciences curriculum **may** refuse any clinical assignment considered normal clinical duty by the host provider. Refusal of a clinical assignment by a student will be considered grounds for the immediate termination of the student from his/her curriculum. The student will not be accepted into any other health-related curriculum.

Residency Qualifications

To qualify for in-state tuition, a legal resident must have maintained his or her domicile in North Carolina for at least the 12 months immediately prior to his or her classification as a resident for tuition purposes. To be eligible for such classification, the individual must establish that his or her presence in the state during such 12-month period was for the purpose of maintaining a bona fide domicile rather than for purposes of mere temporary residency incident to education.

Aliens are subject to the same considerations as U.S. citizens in the determination of residency status for tuition purposes except that holders of B, C, D, F, J, M, P, Q, or S visas may not be considered residents for tuition purposes and their dependent relatives are not eligible for a tuition rate less than the out-of-state rate. Holders of E, H, L, O, or R visas **may** (under certain circumstances) be eligible for the in-state tuition rate.

Regulations concerning residency classification for tuition purposes are set forth in detail in *A Manual to Assist the Public Higher Education Institutions of North Carolina in the Matter of Student Residence Classification for Tuition Purposes*. Each enrolled student is responsible for knowing the contents of this *Manual*, which is the controlling administrative statement of policy on this subject. **Copies of the Manual are available for student inspection in the Enrollment and Records Services Division.**

Determination of student resident status for tuition purposes:

1. Upon applying for admission to the College, each prospective student is classified as a resident or non-resident of North Carolina for tuition purposes, according to the student's declaration at the time of application.
2. In the case of an individual who is originally classified as non-resident and later requests reclassification to resident status, the individual will be asked to complete a "Residency and Tuition Status Application." Along with the completed application, two proofs will need to be provided in order to support a claim for in-state status. This form is available on the College's website. An Assistant Registrar will review the application, make a determination as to the individual's residency/non-residency status, and then will advise the individual in writing of the decision.

Procedures for Hearing Appeals

In the event an individual disagrees with the Assistant Registrar's ruling on his/her residency status, the ruling may be appealed to the College Residency Committee, which has been established by the President of Wake Technical Community College. The appeal must be made in writing to the Vice President of Student Services.

Admissions & Registration Information

Wake Technical Community College follows the Open Door Policy established by the State Board of Community Colleges. This policy provides for the admission of any person who has reached the age of 18 or whose high school class has graduated. This policy is based on the belief that the College has something to offer at all educational levels and that through effective guidance a person can find his or her place in the proper educational program.

Application

Any individual wishing to apply to Wake Technical Community College should contact the Information Center at 919-662-3500 to request an application. Each applicant must submit a properly completed application to the Office of Admissions. The application form should reflect the student's classification. Classification of applicants:

- ▶ A **curriculum** applicant is any person who is pursuing admittance into a degree, diploma, or certificate program. Curriculum applicants should complete the standard (WTCC Form 66) Application for Admission.
- ▶ A **special applicant** is any applicant who is planning to enroll in one or more curriculum courses, but who is not pursuing admission into a degree, diploma, or certificate program. Special students may complete the standard Application for Admission (WTCC Form 66) or the Special Student Application. Special students must meet all course prerequisites or receive approval from the instructor before registering.

NOTE: Generally, the special credit status is limited to 16 semester hours. Special credit students are **not** eligible for financial aid or veterans' benefits, **nor** are they permitted to earn any degree, diploma, or certificate awarded by the College. Students wishing to change from special credit to curriculum status **must** complete the standard application (WTCC Form 66) and submit all necessary transcripts.

- ▶ A **concurrently enrolled** applicant is any currently enrolled private, home, or public high school student who wishes to take concurrent classes at Wake Tech. Concurrently enrolled applicants should use a standard application (WTCC Form 66) and also must submit a permission form obtained from their school. Home and private school applicants may request this form from the Information Center. Applicants must be 16 years of age by the first day of the semester. (The 2005 Session of the North Carolina General Assembly enacted House Bill 583 to allow a student under the age of 16 to enroll in a community college if the president of the college or the president's designee finds that the student is intellectually gifted and has the maturity to justify admission to the college. Students wishing to pursue this option should contact the Director of Admissions for specific criteria and procedures.)

Transcripts

Each applicant **must** request that official copies of transcripts of all previous high school and college (if any) work be submitted directly to Wake Tech. Transcripts become the property of the College upon receipt and may not be copied for student use. Faxed copies are **NOT** considered official transcripts. **Acceptance by Wake Tech is conditional based upon receipt of final official transcripts.**

- ▶ **High School:** Those who are high school seniors should have their school submit a transcript showing work through the first semester of the senior year as soon as possible after the semester has ended and a supplementary transcript showing graduation at the close of school.
- ▶ **GED:** Applicants who have a high school equivalency certificate should request that a copy be sent directly to Wake Tech.
- ▶ **College:** Official transcripts of previous education in other colleges and universities should be submitted to Wake Tech. Applicants presenting transcripts of **completed** associate degrees, or higher, will **not** need to submit high school transcripts, **except** in Health Sciences curricula where **ALL** transcripts are required.

Placement Inventories

The ASSET or the COMPASS placement examinations are administered to each applicant pursuing a degree, diploma, or certain certificate programs to determine the individual's skill level and readiness. Placement inventory results will be used to determine the need, if any, for developmental instruction. Applicants who have taken the SAT or ACT should have their scores sent to the College. Acceptable SAT or ACT scores may eliminate the need for placement testing. SAT or ACT math scores will not be used to waive the math placement test for applicants to the Associate in Science program. Also, one transferable course (grade of "C" or better) each in college-level mathematics and English will exempt the applicant from placement testing, except in competitive admission programs. (See Limited Enrollment Programs.)

Applicants who have been notified that they need placement testing may make an appointment online at <http://testingcenter.waketech.edu> or call (919) 866-5461 to schedule an appointment. In preparation to perform their best on this computerized placement test, applicants should:

1. Read through "Chart Your Success on the COMPASS" available at the Wake Tech Library or purchased as a study guide.
2. Obtain a referral form from a counselor for placement test preparation at our Individualized Learning Center (ILC) prior to testing.
3. Go to www.act.org/compass/sample/index.html or www.testprepreview.com/compass_practice.htm

CURRICULUM FRENCH AND SPANISH PLACEMENT EXAMS

The following students **MUST** take the Wake Tech PLACEMENT EXAM to determine at what level they should continue their foreign language studies:

- Native speakers. (Students who received their primary literacy education in French or Spanish.)
- Heritage learners. (Students who have not received their primary literacy education in French or Spanish. Language skills acquired vary by household. May not have reading and writing skills in that second language.)
- Students who have earned a grade of B (87) or better on each of the THREE years of high school study of the same language.
- Students who have lived or have studied in a Spanish or French speaking country.
- Incoming transfer students returning to the study of French or Spanish begun in high school, but not previously pursued at the college level.

Placement Requirements

Associate Degree Programs

- ◆ High school diploma or equivalent.
- ◆ Sufficient mathematics and science to meet specific program requirements.
- ◆ Educational aptitude as determined by standard tests. Placement inventories will aid in student selection, placement, and guidance.
- ◆ Medical examination for certain Health Sciences programs.

Diploma Programs

- ◆ High school diploma or equivalent
- ◆ Educational aptitude as determined by standard tests. Placement inventories will aid in student selection placement and guidance.
- ◆ Medical examination for certain Health Sciences programs.

Certificate Programs

- ◆ Demonstrated ability to benefit from the training.
- ◆ Some programs have additional minimum requirements (contact the admissions counselor at 919-662-3500 for specific information).
- ◆ Medical examination for certain Health Sciences programs.

In some instances, licensing or employment within certain fields may be limited by an individual's prior criminal record. Prospective students should check with an admission counselor or appropriate academic department head to determine if such sanctions apply to them.

Limited Enrollment Programs

There are some limited enrollment programs that have more applicants than available space. Applicants must meet additional requirements, including sufficient math and science courses, clinical site visits, attendance at mandatory orientation, CPR certification, physical (medical) examination, etc. Some programs require the applicant to remove any academic deficiencies before consideration for the program. Applicants may also be ranked according to the published criteria for placement into one of the competitive programs. This ranking may include performance in specific course work at the postsecondary level, related work experience, and/or specific professional certifications. The requirements for placement in specific limited enrollment programs are published in each program's *Student Policy Handbook*.

Applicants to limited enrollment programs should contact the Admissions Office. Many limited enrollment programs have different application deadlines and requirements that are subject to change.

Limited enrollment programs include:

- Air Conditioning, Heating, and Refrigeration Technology
- Associate Degree Nursing
- Automotive Systems Technology
- Basic Law Enforcement Training
- Computed Tomography and Magnetic Resonance Imaging Technology
- Dental Assisting
- Dental Hygiene
- Emergency Medical Science
- Medical Assisting
- Medical Laboratory Technology
- Phlebotomy
- Radiography
- Surgical Technology

Personal Interview - A personal interview is beneficial to both the applicant and to the Admissions Counselor. The applicant has an opportunity to ask questions about the College and its programs while the Admissions Counselor assists in evaluating the applicant's interest in, and capability to pursue, the program of study for which he or she applied.

All correspondence concerning enrollment and placement should be addressed to the Admissions Office.

Registration

Students who are admitted to a curriculum degree, diploma, or certificate program will receive course planning and registration information from either an admissions counselor or an Advising Center advisor. Based on the student's program of study, course planning and registration information after the initial enrollment is obtained from either a faculty advisor or Advising Center advisor.

Special students (those who have not declared a program of study) are not assigned a faculty advisor, Advising Center advisor, or admissions counselor. However, special students may seek course planning from the Admissions and Counseling Office as needed.

Registration is conducted online (on the web) via WebAdvisor. WebAdvisor is accessed through our student portal Eagle Cruiser by typing <http://eagle.waketech.edu> in your web browser URL address block. WebAdvisor requires that your computer have cookies enabled. After Eagle Cruiser has loaded, select the WebAdvisor tab at the top of the page. Click log in, if you are a current student. Then select Express Registration under the Registration heading. More detailed information regarding the use of WebAdvisor can be accessed by clicking on the How to Use WebAdvisor link at the top of the WebAdvisor page.

The ability to access the registration system may be blocked if the student has any type of financial or academic hold. In some cases, special permission may be required by the curriculum deans to register for a specific class. Visit Wake Tech's website (www.waketech.edu) or WebAdvisor (<http://eagle.waketech.edu>) for more information on courses being offered, registration procedures, and other information you need.

Registrations will be deleted if payment is not received by the payment deadline listed for the registration period in which you registered. Students are responsible for paying the amount due for all scheduled classes, by the published due date. Wake Tech no longer mails invoices. The amount due and date due can be obtained from Web Advisor. Students may pay tuition and fees by credit card at the time of registration and avoid waiting in line at the cashier window. Students are strongly encouraged to use this option.

Students are notified through Eagle Cruiser and email of upcoming registration periods. The student is responsible for scheduling an appointment with his advisor.

Course Load

The maximum course load is 20 credit hours per term. To carry more than the maximum load, students pursuing a degree, diploma, or certificate must obtain an electronic override permission from the dean or the dean's designee. Special studies students must obtain the approval of the Registrar, Associate or Assistant Registrars.

Registration Changes

Adds

A student may change his registration by adding a course through the last day to add, as published in the academic calendar. A student who finds it necessary to add a course should confer with his advisor. Adds may be completed via WebAdvisor until the end of the published registration period. Adds after the registration systems close must be submitted in person to the Enrollment and Records Services Division on a completed Request for Registration Override form signed by the dean.

Drops

A student may change his registration by dropping a course prior to the 10-percent (subject to change) date of the semester/term. A student who finds it necessary to drop a course should confer with his advisor. Drops may be completed via WebAdvisor until the end of the published registration period.

Drops after the 10-percent date of the semester/term and on or prior to the 60-percent point of terms are considered withdrawals and must be submitted to the Enrollment and Records Services Division on a Student Course Withdrawal form. A drop during this time frame will result in a grade of "W."

A student who drops a class is advised that this may affect his financial aid. Financial aid students may contact the Financial Aid office to determine whether funds will be affected.

Audits

Registration (including tuition charges) for courses to be audited is the same as for courses to be taken for credit. Audit courses carry no credit hours and earn no grade points. The student must submit a Request to Audit form to the Enrollment and Records Services Division no later than the last day to add. Departmental approval to audit is not required to audit at this point.

Students who would like to be considered for audit after the last day to add must obtain the signature of the instructor and dean or dean's designee on the Request to Audit form before submitting it to the Enrollment and Records Services Division. Audit requests will not be accepted after the mid-point of the term.

Student Classification

A **full-time student** is a person enrolled for twelve or more semester hours of credit in the fall or spring semesters.

A **part-time student** is a person enrolled for less than twelve semester hours of credit pursuing a degree, diploma, or certificate program in the fall or spring semesters.

A **special student** is any student who is enrolled in a credit course, but is not working toward a degree, diploma, or certificate.

For financial aid purposes only, full-time status is 12 hours credit or more each semester.

2007-2008 Expenses

Tuition

Tuition is established by the State Board of Community Colleges and is subject to change without notice.

North Carolina Students

16 credit hours or more	\$ 672.00 per term
Less than 16 credit hours	\$ 42.00 per credit hour

Out-of-State Students

16 credit hours or more	\$3,732.80 per term
Less than 16 credit hours	\$ 233.30 per credit hour

Fees

Fees are established by the Trustees of the College and are subject to change without notice.

Student Administration Fee

- \$10.00 per term

Campus Access Fee – for registrations at Main, Health, Western Wake, or North Campuses.

- \$5.00 per term

Computer Use/Technology Fee

- \$1.00 per credit hour per term (\$16.00 maximum)

Professional Liability Insurance

- Health Sciences Students \$6.00 per term

Graduation Fee

- Diploma/Degree Student \$35.00
 - Graduation fee *includes*:
 - 4 Graduation Announcements
 - Purchase of Cap and Gown
 - Purchase of Diploma or Degree

Official Transcript Fee

- Per request \$5.00 each

Facility Fee

A Facility Fee of **\$25 per class** will be charged to students attending classes at community schools locations. Fees will be collected by Wake Technical Community College at time of registration. Community school fees are established by the Wake County Public School System and are subject to change without notice.

Textbooks are purchased by the student as they are needed. Costs of textbooks vary, depending upon the curriculum in which the student is enrolled.

Effective July 1, 2007

Attendance Policy

Absences from class are a serious deterrent to good scholarship. The College, therefore, stresses regular class attendance, but recognizes that students should have an opportunity to develop personal responsibility and should have some discretion in attendance to meet the demands imposed by other responsibilities.

Students anticipating absences should notify their instructor in advance. If prior notification is not possible, the student should contact the instructor immediately upon returning to the College to determine the next course of action.

Students are expected to be in attendance at least 90 percent of all scheduled class hours. In the event that a student's absences in a class exceed 10 percent and the absences are not justified to the satisfaction of the instructor, the instructor will submit Student Course Withdrawal Form to the Financial Aid Office to document the last date of attendance. The Financial Aid Office will forward the form to the Enrollment and Records Services Division for appropriate recording.

Student Course Withdrawals received for students with a last day of attendance prior to or on the 60-percent point of the term will result in a grade of "W."

Student Course Withdrawals received for students with a last day of attendance after the 60-percent point of the term will result in a grade of "WF" or "WP" as indicated by the faculty. A grade of "WF" indicates that the student was failing at the time of withdrawal and will count the same as an "F" grade in the grade-point average calculation. A grade of "WP" indicates that the student was passing at the time of withdrawal and will count the same as a "W" grade in the grade-point average calculation.

Withdrawal Policy

A student who finds it necessary to withdraw from a course(s) or the College must complete a Student Course Withdrawal Form. The form must be presented to the instructor of each course from which the student is withdrawing. The instructor must note the student's last date of attendance on the form. The student must also obtain signatures of Financial Aid staff or Veterans' Affairs staff if receiving financial aid or veterans' benefits. The student should then submit the completed form to the Registration and Student Records Services Division for grade processing.

When the student's last date of attendance is on, or prior to, the 60-percent point of the term, the student will receive a grade of "W." A grade of "W" does not affect the grade-point average. Withdrawal forms should be submitted to Enrollment and Records Service Division within two weeks after the last date of attendance instead of being held until the end of the semester.

When the Withdrawal Form is submitted after the 60-percent point of the term, the student will receive a grade of "WF" or "WP" as indicated by the course instructor. A grade of "WF" indicates that the student was failing at the time of the withdrawal and will count the same as an "F" grade in the grade-point average calculation. A grade of "WP" indicates that the student was passing at the time of

the withdrawal and will count the same as a "W" grade in the grade-point average calculation.

Students enrolled in courses offered at times other than the standard sixteen-week semester and the regular summer term should consult the Curriculum Education Credit Class Schedules booklet to determine the last day to withdraw and receive a grade of "W."

Refund Policy Curriculum Classes

Refunds are processed under the North Carolina Community College System (state) refund policy.

Tuition refunds are automatically processed based on deadlines and drop dates and are mailed to the student address on file in the College's records. **Therefore, it is very important that students submit address changes to the Enrollment and Records Services Division as soon as they occur.**

Refund checks are only written after the 10-percent date in the term. Checks are mailed from the Accounting Office within four (4) weeks after the 10-percent date. This date is published in all class schedules and registration information each term. **All refunds are paid by check.**

Tuition

Tuition is charged on a per-credit-hour basis up to a maximum of 16 credit hours per term. There is no additional tuition charge for registration in excess of maximum credit hours. Students will be eligible for refunds when course drops or withdrawals result in enrollment for less than maximum credit hours and meet the applicable conditions described below.

Regular-schedule classes that begin the first week (seven calendar days) of the semester:

1. A 100-percent refund shall be made if the student drops the class prior to the first day of the academic semester as published on the College calendar.
2. A 75-percent refund shall be made if the student drops the class on or after the first day of the semester and prior to or on the official 10-percent point of the semester, as published in the College calendar.

Classes that begin at times other than the first week (seven calendar days) of the term:

1. A 100-percent refund shall be made if the student drops the class prior to the first class meeting.
2. A 75-percent refund shall be made if the student drops the class prior to or on the 10-percent point of the class.

Cancelled classes:

A 100-percent refund shall be made if the class in which the student is officially registered is cancelled by the College.

Registration Fee – Self-Supporting Classes

The registration fee for self-supporting classes is charged separately from (“in addition to”) the tuition charges. Therefore, refunds for these classes are also calculated separately. Otherwise, the policies and deadlines listed prior also apply to self-supporting classes.

To be eligible for a refund a student must officially drop the class, using WebAdvisor or via the Registration Change Request form if the registration system has closed for the term, by the deadlines indicated.

Fees

When the student withdraws entirely and the tuition refund is approved by the College as set forth above, student administration, community schools, and graduation fees will be refunded in total. Refund will be made for vehicle registration if the registration decal is returned with a written request for a refund of the campus access fee.

Death of a Student

In the event of a student’s death, all tuition and fees the student had paid for that term may be refunded to the estate of the deceased.

Books

Books will be accepted for full refund when the student withdraws from the College or drops a class on or before the 10-percent point in the semester, provided the books have not been marked in or otherwise defaced. Requests for book refunds are to be presented with the sales receipt by the student by the 10-percent point in the semester to the Bookstore Manager, who is authorized to accept or reject the request for refund.

Readmissions

Any student who withdraws from the College for reasons other than academic or administrative can be considered for readmission at any subsequent semester. Applicants who have not attended for one year or more must submit a new application. A student who has been dismissed for academic or administrative reasons for one semester or more may re-enroll upon approval by the Dean of Students after a review of the student’s situation with the division dean. Requests for re-enrollment must be in writing and addressed to the Dean of Students. The decision as to whether a former student will be allowed readmission to the College and any conditions or restrictions attached to such readmission are discretionary on the part of the College.

Health Sciences curricula may have readmissions policies that are different from the general policies of the College. These policies will be given to each student enrolled in a Health Sciences curricula in the *Student Policy Handbook* for each program.

Change of Program

Any student desiring to change from one curriculum to another must initiate the change through the Office of Admissions. Students receiving VA educational benefits must also file a change of program request (VA form 22-1995) with the College VA certifying official (Registrar).

Grading Policy

Students are graded according to the following grade-point system in all courses, except Pre-Curriculum.

Grade Points

Grade	Per Credit	Explanation
A	4	Excellent
B	3	Very Good
C	2	Satisfactory
D	1	Poor
F	0	Failing
W	0	Withdrawal (prior to 60%)
WF	0	Withdrawal – Failing (after 60%)
WP	0	Withdrawal – Passing (after 60%)

Students in **Pre-Curriculum** courses are graded according to the following system.

Grade	Explanation
A	Excellent
B	Very Good
C	Satisfactory
F	Failing
W	Withdrawal (prior to 60%)
WF	Withdrawal – Failing (after 60%)
WP	Withdrawal – Passing (after 60%)

Pre-Curriculum courses do not earn grade points.

Students in **Real Estate Fundamentals (RLS 112)** are graded according to the following system. The North Carolina Real Estate Commission requires a higher minimum passing score than Wake Tech.

Grade	Per Credit	Explanation
A	4	90 – 100
B	3	80 - 89
F	0	Below 80
W	0	Withdrawal (prior to 60%)
WF	0	Withdrawal – Failing (after 60%)
WP	0	Withdrawal – Passing (after 60%)

The following grades will **not** be used in computing the grade-point average.

Grade	Explanation
AU	Audit
I	Incomplete
IP	In Progress (Pre-Curriculum and Multi-entry/multi-exit classes only)
NA	Never Attended
P	Pass (Cooperative Education Only)
W	Withdrew
WP	Withdrew Passing (after 60%)
T	Transfer Credit
X	Credit by Examination

A grade of Incomplete (I) will be given only when circumstances justify additional time for the completion of a course. An Incomplete must be removed by the end of the fifth full academic week of the term immediately following that in which the Incomplete was incurred. If it is not removed by this date, the Incomplete will be recorded as an "F" in the student's permanent record.

The grade awarded for participation in Cooperative Education will be either "P" (Pass) or "F" (Fail). These grades are not used in computing the grade-point average. Grades are available online approximately two business days after the deadline for faculty to submit final grades. To view grades, access WebAdvisor. Click on Current Students and select Grades under Academic Profile. Grades are mailed at the end of the semester only to students who complete a Request for Official Grade Mailer. Information regarding grade appeals is listed within the Student Rights and Responsibility section.

Computation of Grade-Point Average

The following process is used to determine a student's grade-point average (GPA):

1. Multiply the number of semester hour credits assigned a course by the number of grade points for the grade received.
2. Add all the grade points together.
3. Divide the total grade points by the total number of semester hours attempted including grades of "F" and "WF."
4. Whenever a course is repeated, beginning Fall 2006, the best grade (except when the repeat results in a grade of I, IP, NA, W, AU, or X) will be used in the grade-point average computation.

Example of Grade-Point Average Computation

Subject	Hour Credit	Grade Received	Per Semester Hour	Grad Points
English	3	A	4	12
Physics	3	D	1	3
Economics	3	B	3	9
Chemistry	5	F	0	0
Psychology	3	C	2	6
Total	17			30

Thirty grade points divided by 17 hours attempted equals a 1.76 grade-point average for work attempted in this example. A GPA of 2.0 constitutes a "C" average. Hours attempted and grade points earned in previous terms should be included in the above procedures to determine the cumulative grade-point average.

Grade Posting by Faculty

The Family Policy Compliance Office (FPCO), which is responsible for the administration of Family Educational Rights and Privacy Act (FERPA) at schools and colleges, has issued a technical letter stating that grades may not be posted by Social Security Number (SSN), or part thereof, without the written consent of the student.

Wake Tech faculty are neither required nor are they prohibited from posting grades. However, they may exercise this option only **with the student written consent to post grades**. A **FERPA Consent to Post Grades form** should be distributed by the instructor of each class for which he or she will be posting grades. Only the grades of those students who give consent should be posted, and even with consent, the full student social security number should never be used. The complete form should be given to the instructor's dean with their final grade report at the end of the term for filing for a period of no less than 3 years. After that time they may be destroyed if no litigation, claim, audit, or other official action involving the records has been initiated. If official action has been initiated, destroy grade report in office after completion of action and resolution of issues involved. (*Item 45550, Records Retention and Disposition Schedule Amendment, as amended August 1, 2002*)

For faculty who utilize Blackboard technology, written consent is not required to post a student's grade to the section of the student site where **only the student** can access via a secure password (i.e. individual grade books). However, faculty **may not** post a listing of grades to their Blackboard site where all class members have access because that would be disclosing personally identifiable information without student consent.

Faculty **may not** send individual grades to students via email because the FPCO has ruled that e-mail messages are not secure.

This directive includes even those emails that generate from the student to the instructor. This may change once the college starts issuing college email addresses to students with the full implementation of Colleague/Web Advisor/Campus Cruiser option because students will log into the portal with a login ID and password. The FPCO considers the combination of these two elements (Blackboard grade book or College email address) to be more secure and acceptable.

Grade Forgiveness

A student who has not been enrolled in curriculum courses in the college for 60 consecutive months (5 years) may submit a Grade Forgiveness request to Enrollment and Records Services Division. Under this policy, the student may request that his or her previous grades of "WF" or "F" not be used in calculating the cumulative grade point average. However, the grades will remain on the transcript, but they are not included in the GPA. This may not have any bearing on how another institution calculates the student's GPA.

Prior to re-evaluation, the student must be readmitted to the college, register for courses, and complete at least 12 credit hours of course work, at the 100 level or above, with a minimum quality point average of 2.0. A student may only request grade forgiveness once in his or her academic career at the college. Re-evaluation will be processed weekly, and the student will be notified of the results in writing to the student's address on file.

Satisfactory Academic Progress

At the end of each academic term, each student's cumulative and semester grade-point averages are computed. Students who fall below the required cumulative grade-point average, based on credit hours attempted, will be placed on academic probation. Students will be notified of their academic probation status by letter from the Vice President of Curriculum Education Services. Students on academic probation are prohibited from registering for the next term unless:

1. The student obtains a Permit to Register/Plan of Action form signed by his/her advisor,
or
2. The student achieves the minimum cumulative grade-point average, based on credit hours attempted.

Credit Hours Attempted/Degree	Required Cumulative GPA
1 – 40	1.60
41 – 50	1.80
51 or more	2.00

Credit Hours Attempted/Diploma, Certificate	Required Cumulative GPA
1 – 20	1.60
21 – 30	1.80
31 or more	2.00

Satisfactory Progress in Health Sciences Curricula

In the Health Sciences curricula there are certain policies relating to student progress that are different from the general policies of the College. These policies will be given to each student in a health-related curriculum.

Satisfactory Progress in Pre-Curriculum Courses

The objective of the Pre-Curriculum program is to assist students in obtaining those academic skills necessary to succeed in a curriculum program. Therefore, a student taking required Pre-Curriculum courses must earn a grade of "C" or better in order to progress to the curriculum program or to the next Pre-Curriculum course level. A grade of "F" requires the student to repeat the course.

President's List

The College publishes a "President's List" at the end of each academic term. The list is composed of students who have achieved a grade-point average of 4.0 at the end of that particular term based on a minimum of 12 credit hours attempted in the Fall and Spring semesters; a minimum of 8 credit hours must be attempted for the Summer term.

Dean's List

The College publishes a "Dean's List" at the end of each academic term. The list is composed of students who have achieved a minimum grade-point average of 3.50 at the end of that particular term based on a minimum of 12 credit hours attempted in the Fall and Spring semesters; a minimum of 8 credit hours must be attempted for the Summer term.

President's Award for Excellence

The President's Award for Excellence is the top academic award presented by Wake Technical Community College. This award recognizes students who excel in academic achievement, attitude, attendance, and motivation.

Seven students (one from each academic division) are selected to receive the President's Award for Excellence during each calendar year. Division deans and instructors select award recipients.

Each recipient receives a personal plaque of commendation, presented by the College President. Recipients' names are engraved on a trophy that is permanently displayed in the College's trophy case.

Who's Who Among Students in American Junior Colleges

Each spring, second-year students are nominated for *Who's Who Among Students in American Junior Colleges* based upon the student's scholarship ability; participation and leadership in academic and extracurricular activities; citizenship and service to the College; and potential for future achievement.

Graduation Requirements

In order to be eligible for graduation, a student must complete all prescribed courses for the curriculum in which he/she is enrolled. Students must have a cumulative grade-point average (GPA) of 2.0 in their program of study. Grade-point averages are calculated by dividing the total number of grade points earned by the total number of credit hours attempted. Courses used in this calculation are those completed at Wake Technical Community College that are listed in the student's curriculum outline as minimum requirements and any additional courses approved by the appropriate academic dean.

Students must complete a minimum of 25 percent of hours required for a degree, diploma, or certificate in residence at Wake Technical Community College. Final course work must be completed in residence at Wake Technical Community College.

In order to graduate, each student must fulfill all financial obligations to the College, including graduation fees. Graduation fees are to be paid at the time of registration for the term in which graduation requirements will be completed.

Note: Students pursuing a degree or diploma are not normally eligible to receive a certificate in the same program. Requests for exceptions will be considered when a specific and immediate need exists for purposes of employment or promotion. Students pursuing a degree or diploma who find it necessary to scale down their objective to a certificate should contact the Enrollment and Records Services Division to determine if they may be eligible for a certificate.

Graduation

Graduation exercises are held at the end of summer term for all students who have completed degree or diploma requirements since the last graduation. Prospective graduates must request a graduation clearance by submitting an "Application for Graduation" form to the Enrollment and Records Services Division. The deadline for submitting this application is the last day of registration of the term in which the student will complete the requirements for the degree, diploma, or certificate.

Persistence toward Graduation

Information concerning the rate of persistence toward graduation for Wake Technical Community College may be obtained from a member of the counseling staff.

Transcripts of Academic Record

Transcripts will be issued upon written authorization from the student.

Official copies of transcripts are available at a cost of \$5.00 per copy. Student copies of transcripts are available at no charge. However, transcript requests will not be processed, under any circumstances, for students who have any outstanding indebtedness to the College.

Transcript requests may be made in person to Enrollment and Records Services Division, mailed to the division or online via WebAdvisor. The form may be downloaded from the College website for mail or fax requests. One copy of a transcript will be provided per request. Transcript requests are normally processed daily. Transcripts requested by 12 noon may be picked up after 3:30 p.m. on the same day unless otherwise posted. Transcripts to be mailed are dispatched the next day. Transcripts requested after noon will normally be ready after 3:30 p.m. the next day. A photo I.D., such as a driver's license, is required for pickup of transcripts.

Fax or Web Requests for Transcripts

Students may request transcripts by fax or web for pickup or mail. The fee structure described in Transcripts of Academic Record applies to transcripts requested by fax and web.

The processing of faxed or web requested transcripts will conform to the time frame described in Transcripts of Academic Record. A Transcript Request Form can be downloaded from the College's website www.waketech.edu.

Course Repetition

A student may repeat any course twice; each attempt will be recorded on the student's official academic record. The best grade earned in all the attempts is calculated in the GPA. The dean responsible for the supervision of the course being taken may approve exceptions to this policy.

Change of Name, Address

Changes of name, address, telephone numbers, or e-mail must be reported, in writing, to the Enrollment and Records Services Division immediately upon change.

Annual Notice to Students of Their Rights under The Family Educational Rights and Privacy Act of 1974

Annually, Wake Technical Community College informs students through the publication of the Student Handbook of the Family Educational Rights and Privacy Act of 1974, as amended. This act, with which the College intends to comply fully, protects the privacy of educational records, establishes the rights of students to inspect and review their educational records, and provides guidelines for the correction of inaccurate or misleading data through informal and formal hearings. To the extent consistent with the Act, students who seek the correction of inaccurate or misleading data or who otherwise have complaints should follow the grievance procedure contained in this Handbook. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office concerning alleged failures by the College to comply with the Act.

Wake Technical Community College's policy establishing its intent to comply with the Act is published in the College catalog. Procedures implementing the provisions of the Act are published in the Student Handbook. Questions concerning the Act and Wake Technical Community College's policy should be referred to the Enrollment and Records Services Division.

Care of Records: Policies and Procedures

Wake Technical Community College, in the execution of its responsibilities to students, maintains accurate and confidential student records. The College staff recognizes the rights of students to have access to their educational and personal records in accordance with College policy and the Family Educational Rights and Privacy Act of 1974.

Definition of Term "Educational Records"

These regulations as defined under the provisions of the Act include files, documents, and other materials that contain information directly related to students and that are maintained by an educational institution or an authority on behalf of the institution.

The term "educational record," under the provision of the law, does not include the following:

1. Records of institutional, supervisory, and administrative personnel that are in the sole possession of the maker and that are not accessible or revealed to any other person except a substitute for the above named personnel.
2. Records and documents of security officers of the institution that are kept apart from such educational records.
3. Records on students that are made or maintained by a physician, psychiatrist, psychologist, counselor, or other recognized professionals or paraprofessionals acting in their official capacity and that are made, maintained, or used only in connection with a provision for treatment of the student and not available to anyone other than persons providing such treatment, except that such records can be personally reviewed by a physician or other appropriate professional of a given student's choice.
4. Financial records of the parents of the students or other information therein contained.
5. Confidential recommendations if a given student has signed a waiver of the student's rights of access, provided that such a waiver may not be required of the student.

Control Provisions on Student Records and Student Information

The official student file shall not be sent outside the Admissions Office, Enrollment and Records Services Division, Financial Aid Office, Placement Office, or Cooperative Education Office except in circumstances specifically authorized in writing by the President or appropriate vice president.

Students have the right to inspect their own records covered by the Act whether recorded in hard copy, electronic data processing media, or microfilm. The Registrar has been designated by the College to coordinate the Inspection and Review Procedures for Student Education Records. Requests to review records must be made in writing, specifying the item or items of interest. Records will be made available for review within forty-five (45) days. Upon inspection, students are entitled to an explanation of any information contained in the record.

Students may have copies of their records except:

1. When a financial "hold" exists.
2. When the copy requested is a transcript of an original or source document that exists elsewhere.

A fee of \$.50 per page will be charged for copies of records other than the student's transcript(s) of academic records.

Transcripts and other information, except as provided by the Act, are released only with the written consent of the student. Such written consent must:

1. Specify the records or the data to be released, to whom it is to be released, and the reason(s) for release.
2. Be signed and dated by the student.

Disclosure of Information without the Student's Consent

Educational records must be disclosed without written consent of students to properly identified and authorized representatives of the Comptroller General of the United States; the Secretary of Education; state educational officials; and the Department of Veterans Affairs, for audit and evaluation of federal and state-supported programs, or in connection with enforcement of the federal or legal requirements that relate to such programs. Routine requests for student data from agencies such as the Department of Education, OEO, research agencies, and state-reporting agencies may be honored without prior approval of the student only in formats where students are not identified.

Confidential information requested by other than federal or state agencies as specified above will be released only under the following conditions:

1. An official order of a court of competent jurisdiction.
2. Subpoena. (Students will be notified immediately by registered mail that their records are being subpoenaed.)
3. To parents of students upon the parent providing a certified copy of the parent's most recent Federal Income Tax Form in which the student is identified as a dependent.

Requests for confidential information will be honored without prior consent of the student in connection with an emergency, if the knowledge of such information by appropriate persons is necessary (in view of a responsible person) to protect the health or safety of the student or other persons.

Faculty and administrative officers of the College who demonstrate a legitimate educational need will be permitted to look at the official student file for a particular student.

The College may make the following "Directory Information" available to the public unless the student notifies the Registrar in writing by the end of the first week of the term that such information is not to be made available.

1. Student's name
2. Date of birth
3. Email address
4. Major field of study or program
5. Dates of enrollment
6. Degrees, Diplomas, or Certificates received
7. College honors

Any release of student information for public use or use by the media except that specified above must have prior written approval by the student(s) involved.

Record of Who Has Access

A record of access to the official student file will be maintained within the file itself. This record will show the name, address, date, and purpose of the person who has been granted access. All persons who have access will be included in this record except those institutional employees who, because of the nature of their duties, have been granted access.

Student's Rights to Question Contents of Official Files

A student has the right to view his official records maintained by the College. Furthermore, a student may question any inaccurate or misleading information and request correction or deletion of that data from the official files.

All such requests will be sent to the Registrar and will become a part of that student's file.

All requests for correction of a student file will be acted upon within 45 days of receipt of that request. If the custodian can verify that such data is, in fact, in error, appropriate corrections will be made and the student will be notified in writing when the correction has been completed. In the event the Registrar fails to resolve the student's requests to the student's satisfaction, the student may prosecute the grievance further through compliance with the grievance procedure contained in this Handbook. If the outcome of the grievance is in agreement with the student's request, the student will be permitted to review his file to verify that the change has been made correctly. If the student's request is denied, he will be permitted to append a statement to the record in question, showing the basis for his disagreement with the denial. Such appendages will become a permanent part of the record.

Student Financial Aid

Financial Aid Mission Statement

The Wake Tech Financial Aid program exists to ensure that no qualified student will be denied the opportunity to continue his or her education because of economic disadvantages. Through a program of scholarships, grants, work-study, and loans, students enrolled at the College are able to supplement their own resources and those of their families to complete a course of study.

Available Financial Aid Programs

Grants

A grant is a gift that does not have to be repaid.

Federal PELL Grants

PELL is an entitlement program, which means that all students who are eligible will receive PELL Grant awards. Applicants must be U.S. citizens or eligible non-citizens carrying at least a half-time (six credit-hours) course load. The amount of the grant is determined by the Department of Education

Academic Competitiveness Grants

To qualify, a student must be PELL-eligible, a U.S. citizen, and enrolled full-time in a degree-granting program. Academic Competitiveness Grants will be given to first- and second-year students who have taken a rigorous high school curriculum and have not been enrolled previously in an undergraduate program. First-year grant recipients must have graduated high school after January 1, 2006, and second-year grant recipients graduate after January 1, 2005. Second-year grant recipients must also retain, at least a 3.0 overall GPA.

Federal Supplemental Educational Opportunity Grants (FSEOG)

Federal SEOG awards range from a minimum of \$100 to a maximum of \$4,000 a year. This federal program does not require employment or repayment. Due to limited funding, the maximum award at Wake Tech is \$800 per academic year.

Federal Work Study Program

The purpose of this program is to extend part-time employment opportunities to students, particularly those from low-income families, who are in need of financial assistance to pursue a course of study. Students generally work 10-15 hours per week. Awards are based on available funding. Complete the Free Application for Federal Student Aid (FAFSA).

Be enrolled in an eligible program of student (diploma or associate degree program, U.S. and non-eligible citizens must be enrolled at least half-time. International students are required to be enrolled full-time during fall and spring semesters and at least half-time during Summer term.

- Earn and maintain a cumulative grade-point-average of at least 2.0
- Meet all satisfactory academic progress guidelines for federal student aid.

North Carolina Community College Grant Program

The North Carolina Community College Grant is a state grant program available to the neediest students whose (a) Federal Pell Grants are less than the "required educational expenses" and (b) estimated income tax liability (according to federal guidelines) is too low for the family to be eligible for the Federal Tax Credit. Students must complete the Free Application for Federal Student Aid to be considered for this grant.

North Carolina Student Incentive Grant Program (NCSIG)

The North Carolina Student Incentive Grant is a state and federal grant program available to exceptionally needy students. It is administered jointly by the College Foundation, Inc., and the College Financial Aid Officer. Students must be North Carolina residents and must apply by March 15 of each year for the upcoming fall semester.

Loans

Federal Family Educational Loan Programs (FFELP)

- **Federal Subsidized Stafford Loan Program** - To qualify for these loans, students must demonstrate financial need as a result of filing an FAFSA. Eligibility for this loan is determined by the institution, but funds are actually provided and repayments are collected by outside lenders who participate in this program. The amount that may be borrowed per year is set by the federal government and ranges from \$2,625 to \$5,500 for undergraduates, depending on the student's grade level. The interest on this loan is paid by the government while the student is enrolled on at least a half-time basis. The student becomes responsible for the interest and principal payments six months after graduating or dropping below half-time enrollment.
- **Federal Unsubsidized Stafford Loan Program** - The only difference between this loan and a Subsidized Stafford Loan is that the Unsubsidized

Stafford Loan is not need-based, and students are charged interest on these loans from the date of first receipt of loan funds. Although students must complete an FAFSA to qualify for an Unsubsidized Stafford Loan, eligibility is not determined based on need but on the cost of attending minus other expected financial aid. Annual maximums, interest rates, and repayment provisions are the same as Subsidized Stafford Loans. Applications are available in the Office of Scholarships and Financial Aid, or may be obtained from several participating lenders. Repayment starts as soon as funds are disbursed.

- **Federal PLUS Loan for Parents** - Parents of a dependent undergraduate student may apply for a PLUS loan to help meet the student's costs of attendance not covered by other financial aid. Interest rates and repayment provisions on PLUS loans are generally more favorable than other consumer loans available for educational expenses. A FAFSA need not be completed, but parents must submit a PLUS Request form to the Financial Aid Office for certification of the student's cost of attendance as well as other anticipated financial aid. PLUS applications are available in the Financial Aid Office or may be obtained from several participating lenders. Repayment starts as soon as funds are disbursed

Loan Program for Health, Science, and Mathematics

In an effort to encourage and provide financial assistance to North Carolinians desiring career opportunities in the health, science, and mathematics disciplines, the General Assembly makes available appropriations for loans for the instructional programs cited:

Health: Allied Health; Health Sciences

Science: Computer and Information Science, Engineering and related technologies Life Sciences and Physical Science.

Mathematics: Mathematics (General, Pure, and Applied)

North Carolina Community College Loan Program

The North Carolina Community College System Office makes allocations to each community college for short-term loans to assist students who demonstrate financial need. Each community college administers the Loan Program according to its policies and procedures. Students should:

- Present their needs to the financial aid director
- Complete an NCCC Loan Program Application

Maximum loans at Wake Technical Community College are \$400 and must be repaid within 60 days from the first day of the semester.

Scholarships

Scholarships are available to students in vocational, technical, and college/university transfer programs. These scholarships are awarded annually in varying amounts by civic clubs, professional organizations, industrial groups, and hospital organizations. Although scholarships are awarded primarily upon the basis of financial need, a student applying may have to meet certain defined requirements to qualify for specific awards. Evidence of scholastic potential, achievement, and good character may be required. Applications and further information may be obtained from the Financial Aid Office.

How Do I Apply For Financial Aid?

To apply for financial aid you must complete the Free Application for Federal Student Aid (FAFSA). The application can be obtained from the WTCC Financial Aid Office or your local high school guidance counselor. The application may also be completed on line at www.fafsa.ed.gov.

Financial Aid Deadlines

The table below lists the deadline dates that a Financial Aid file must be completed, as well as recommended dates that one should apply by for financial aid for a given semester:

In order to register during:	You should apply for Financial Aid by:	Your Financial Aid file must be complete by:
Fall Registration	May 1	June 1
Spring Registration	October 1	November 1
Summer Registration	April 1	May 1
Priority Deadline to be considered for all available annual resources	March 15 (date received)	

If your financial aid eligibility has not been determined or your financial aid file is not complete by the dates listed above you are responsible for payment of your tuition and fee charges and bookstore charges. Once your eligibility for financial aid has been determined you will receive an award letter that will provide information regarding disbursement of financial aid funds.

Financial Aid Payments

Grant, loan, and scholarship payments are made on a semester basis. Charges for tuition, fees, and books are allowed against Pell Grants, loans, Vocational Rehabilitation, and scholarships during registration. Refunds for each semester for Pell, loans, SEOG, and NCCG after charges are deducted, are mailed to students. Pell checks are mailed to students on the thirtieth day of the academic calendar. Student Loan checks are mailed to borrowers approximately thirty-seven days from the beginning day of the term. College Work Study payments are made on a monthly basis after a time record has been signed, approved, and processed by the Financial Aid Office.

Other Repayment Information:

If a student uses Title IV financial aid to register for a class or classes but does not attend the class (NA) and fails to drop the class, the College is required by Federal law to refund all tuition and fees to the appropriate financial aid program. If the student also charged books and non-book merchandise, for the class, the student is responsible for returning the books and the non-book merchandise to the bookstore. If the student fails to return the books and non-book merchandise, the student will be required to repay the Title IV program for those charges. Failure to do so will result in a hold being placed on your records and the overpayment will be reported to the Department of Education. If you register for class and decide not to attend it is your responsibility to cancel your registration with the Office of Enrollment and Records.

Eligibility Requirements for Federal & State Assistance

To receive Federal Title IV assistance and state assistance, students must do the following:

- demonstrate financial need
- have a high school diploma or a General Education Development (GED) certificate on file with the College;
- be enrolled at least half time (6 credit hours) in an eligible program of study;
- be a U.S. citizen or an eligible non-citizen;
- have a valid Social Security number;
- make satisfactory academic progress;
- sign a statement on the FAFSA certifying that you will use federal student aid for educational purposes only;
- sign a statement on the FAFSA certifying that you are not in default on a federal student loan and that you do not owe money back on a federal student grant;
- answer a question on the FAFSA reporting whether you have been convicted of possessing or selling illegal drugs.
- register with Selective Service, if required.

In order to receive the maximum Pell Grant, a student must be enrolled for 12 credit hours or more each semester in an eligible curriculum of study. Depending on eligibility a reduced Pell Grant can be received by students who are enrolled three-fourths time (9-11 credit hours), one-half time (6-8 credit hours), or less than half-time (1-5 credit hours). Only courses in your program of study can be included when determining your award for the semester. For example, if you are enrolled for twelve credit hours but you are taking a five credit hour course that is not part of your program of study, you will receive PELL Grant funds for seven credit hours only and not twelve credit hours although you are enrolled for twelve hours.

Refunds and Repayments

College Refund Policy—Refer to appropriate section for information concerning the College's refund policy.

Title IV Refunds

The Title IV repayment policy applies when a student receives financial aid funds and subsequently withdraws either officially or unofficially from school prior to the 60 percent point of each semester/term. In this case, the student has received financial aid to cover educational expenses for an enrollment period; and since the student has ceased to be enrolled at least half time these funds can no longer be considered to be used for educational purposes, the student may owe a repayment to the Pell Grant, SEOG or Stafford Loan Program. Such repayment is to be determined on the basis of criteria set forth by the U.S. Secretary of Education. If you are considering withdrawing from WTCC we strongly urge you to speak to a Financial Aid Counselor to determine how withdrawing may impact you.

Vocational Rehabilitation

Vocational Rehabilitation is a public service program operated through the Division of Vocational Rehabilitation, Department of Human Resources. Vocational Rehabilitation offers several financial resources to assist individuals with disabilities. Students may be eligible for financial assistance to complete a course of study to meet individualized needs. Prospective students should contact the nearest Division of Vocational Rehabilitation Services office.

Satisfactory Academic Progress Policy for Financial Aid Recipients

Federal regulations require schools to monitor student's academic performance to ensure that they are maintaining satisfactory academic progress and thereby progressing towards program completion. Satisfactory Academic Progress is reviewed at the end of each academic year regardless of when your enrollment begins with the exception of students that are on probation/conditional status or enrolled in a certificate or diploma program. Students on conditional status or enrolled in the

certificate/diploma programs are reviewed at the end of each semester. If you fall below the minimum requirements, you will be placed on conditional status/probation for the next semester that you are enrolled. If at the end of your probationary period you have not met the minimum requirement your financial aid will be terminated for your next enrollment period.

Wake Technical Community College's Satisfactory Academic Progress policy establishes the following criteria as minimum requirements in order to maintain financial aid eligibility:

- You must maintain the minimum grade point average for attempted credit hours:

Credit Hours Attempted/Degree	Required Cumulative GPA
1 – 40	1.60
41 – 50	1.80
51 or more	2.00

Credit Hours Attempted/Diploma, Certificate	Required Cumulative GPA
1 – 20	1.60
21 – 30	1.80
31 or more	2.00

- You must successfully complete 67% of the cumulative credit hours attempted. (Divide the number of earned credit hours by the number of attempted credit hours.) Note: Pre-curriculum hours do not count in the computation of the completion rate nor the GPA.
- You must graduate within 150% of the published time required to earn a degree.

If you fail to meet the minimum requirements, you must make up the deficiency without the use of federal funds. An exception can be made for students with unusual or mitigating circumstances. An appeal must be submitted in writing, and approved by the Director of Financial Aid, to receive federal funding while making up the deficiency. Supporting documentation is required for the appeal to be considered.

Unsatisfactory Academic Progress Causes the Loss of Federal Financial Aid

This is a condensed version of the Satisfactory Academic Progress Policy for a more comprehensive copy please references your student handbook or the College Catalog. An additional copy of the policy will be included with your award letter. You are responsible for being familiar with the SAP policy.

Quantitative Measure: Completion Rate Requirement

The student must successfully earn 67% of the cumulative credit hours attempted to meet the minimum requirement; for example, if a student has 60 hours during enrollment he/she must successfully complete 40 hours (60 hrs attempted x .67%=40). Successful completion is defined as receiving a grade of A, B, C, D, or P.

Maximum Timeframe

A student's maximum time frame to complete a program is 150% of the published length of the program; for example, if 75 semester hours are required to complete a degree, the student may attempt a maximum of 113 hours before exceeding eligibility for financial aid (i.e. $75 \times 1.5 = 113$). A student may add up to one academic year of credit (30 semester hours) for required remedial coursework.

Major Changes: In order to ensure that students do not exceed the maximum timeframe for receiving financial aid, students who change degree programs because they have either graduated or decided to pursue another career path must have their transcripts evaluated by their advisor or academic dean. Students who repeatedly change majors will not be eligible for financial aid.

Treatment of Selected Grades:

Withdrawals: Credit hours in which a student receives a grade of "W" or "WF" are included in the number of attempted hours but do not count toward successfully completed hours; therefore, students who withdraw may have difficulty meeting the satisfactory academic progress requirements.

Incompletes: Students will not be affected by "Incompletes" at the time of the review.

Transfer Credit: Students transferring from another institution will be considered making satisfactory progress at the time of their enrollment. A student's maximum time to receive financial aid will be reduced by the equivalent transfer of credit hours towards his/her degree.

Audits and Credit by Examination: An audit (AU) grade is not considered attempted coursework. It is not included in the grade point average or completion rate determinations. A student cannot receive financial aid for courses that he or she audits or receives credit by examination (CR).

Repeated Courses: In accordance with Wake Tech policy, a student is permitted to repeat any course twice. The last grade earned is calculated in the GPA. For financial aid purposes the previous hours attempted and earned will continue to be counted in student's cumulative total of hours earned and attempted.

Summer Session: Credit hours attempted and earned during summer session will be included in the calculation of satisfactory academic progress, just as any other enrollment period.

Eligibility Status

Satisfactory: Satisfactory status is achieved when all criteria explained above is met.

Probation/Conditional Status: Students (who are not currently on probation) who do not have the required grade point average and/or who have not successfully completed at least 67% of their attempted credit hours will be placed on probation for the following semester. Satisfactory progress will be monitored at the end of the semester to determine if student meet the standards of progress and is eligible to continue to receive financial aid.

Termination: Students on financial aid probation/conditional status who have not successfully attained at least a cumulative 67% percent completion rate and/or earned the minimum required grade average shown listed above at the conclusion of the probation period will have their financial aid terminated.

Students who have attempted the maximum allowable credit hours for their program of study will have their financial aid terminated.

Notification of Financial Aid Termination or Probation:

The Financial Aid Office will send a warning letter to any student who is placed on probation/conditional status or a termination letter to any student who is no longer eligible for financial aid. All students are responsible for knowing their status. Failure to receive a letter will not reverse the conditional status or termination notice.

Regaining Eligibility: Students who attend school (without federal financial aid) may regain financial aid eligibility by achieving a 67% completion rate and or earning the required GPA based on hours attempted. A student may request reconsideration of eligibility for financial aid by submitting a written request to the Financial Aid Office once all requirements are met.

Students who exceed the maximum allowable time frame to complete a program of study must appeal by using a student petition and provide a graduation plan signed by their academic advisor. If the plan is considered reasonable, the student will receive financial aid on probation for one or more semesters until the degree is completed.

Petition of Waiver of Satisfactory Academic Progress Standards:

Students who have been disqualified from receiving financial aid may petition the Financial Aid Office to waive the satisfactory progress requirements only where there are special circumstances present. A student may submit written documentation to the Financial Aid Office that explains unavoidable circumstances that have affected academic performance. You must be able to present supporting documentation. Circumstances may include, but are not limited to: illness of student or immediate family member; death of family member; full-time employment; and the length of time since last enrollment. If a student is allowed to continue due to a mitigating circumstance, the student will be given an additional increment of time to meet the standard requirements.

Returning students are evaluated on a continuing basis from the first enrollment at WTCC unless a mitigating circumstance is considered. Returning students who were previously enrolled under other than the current academic progress policy will be required to meet the standards of the current policy upon returning.

Complete Academic Record: In order to measure a student's satisfactory progress toward degree, diploma, or certificate requirements, the student's total academic record must be evaluated whether or not the student received aid for the entire time of enrollment. Additionally any courses with grades of W or WF that are granted forgiveness by WTCC must still be included in students cumulative record when determining satisfactory academic progress standards. When students complete course work for more than one major, academic progress standards must be met to receive student aid.

Appeals

Any action relative to a student's financial aid for reasons of academic progress may be appealed. A student may appeal any action taken related to academic progress for receiving aid by submitting to the Financial Aid Office a written statement of appeal no later than 48 business hours of the time a notice of action is received by the student. If an action taken proves to be contrary to written policy used by the Financial Aid Office, or if information obtained from the Registrar's Office proves to be incorrect, or if in any way the action proves to be unfair treatment or not in compliance with federal regulations, the student's aid may be reinstated.

If the appeal is not resolved in the Financial Aid Office, the student may appeal/grieve the action through the College's Grievance procedure contained in the Student Handbook.

The person designated by Wake Tech to provide financial aid information to students is the Financial Aid Director her designate. Office hours are 8 a.m. to 8 p.m., Monday – Thursday, and 8 a.m. to 5 p.m. on Friday. The telephone number is (919) 662-3500.

Student Activities

Student Government

The Student Government Association (SGA) is the campus organization that represents the interests of all Wake Tech students. Each curriculum student enrolled at Wake Technical Community College who is required to pay the Student Administration Fee shall be a member of the Wake Technical Community College Student Government Association and shall be governed by its rules and regulations.

Student Publications Policy

Publications are defined to include but are not limited to the following: newspapers, pamphlets, newsletters, brochures, flyers, books, posters, or magazines. Publications are not to be printed or distributed without official approval of the Dean of Students. Off-campus organizations are not allowed to distribute their publications on any of the College's properties without the approval of the Dean of Students.

Approved campus organizations may post and distribute their publications if said publications have been approved by the president of the organization, the organization's advisor, and the Dean of Students.

Publications containing profanity, language that is offensive to race, sex, or creed, grammatically incorrect statements, and misspelled words will not be approved for printing or distribution. All publications must represent the dignity, mission, and standards of the College.

Organizational publications must also be consistent with the philosophy and mission of the organization.

The College reserves the right to rescind the approval to function on campus of any organization that violates this policy. Individuals found guilty of not conforming to this Publications Policy could face disciplinary actions to include suspension from the College.

From time to time changes to published College policy will occur and will affect students. The College reserves the right to make such changes and holds students responsible for information contained therein. Announcements of changes will be published in the official publications of the College.

Student Publications

Wake Technical Community College sponsors a newspaper titled *The Student Voice*, which is written, edited, and managed by students with the assistance of an advisor from the English department. In addition, the Student Government Association sponsors a newsletter titled *The Eagle's Eye*, which is published by the Office of Student Life. This publication provides information about SGA activities.

Wake Tech Alumni Association

The College encourages its alumni to share information about personal and professional accomplishments through a link on the College's website. Inquiries about alumni news should be directed to the College's department of Design & Publications. An online alumni magazine is in development.

Student Chapters of Professional Organizations and Clubs

The Office of Student Life supports and encourages professional organizations and clubs at Wake Technical Community College. Professional organizations and clubs give students a unique opportunity to develop leadership skills, network with professionals in a given field of study, and to get involved. Below is a list of the charter professional organizations and clubs at Wake Tech. **Professional organizations and clubs indicated by an asterisk were active during the previous academic year.** Students interested in joining a club should go by the Office of Student Life, located in the Student Services Building.

Guidelines for Organization Approval

All student organizations must be approved by the College through the Office of Student Life. The following steps are the procedural guidelines in obtaining new student organization approval:

Students desiring the creation of a new organization must present their request to the Student Activities Coordinator. This presentation must include the name of the organization, the purpose, the objectives, recommendations for faculty advisor, the procedure for election of club officers, the means for the financing, the method of financing, and other related information desired by the Dean of Students' office.

The organization must receive approval from the Coordinator of Student Activities, the Dean of Students, the Vice President of Student Services, and the President of the College before becoming an official college organization. Disapprovals can be appealed using the grievance procedure contained in this publication.

Advertising Club*

The purpose of the Wake Tech Ad Club is to provide an opportunity for students to make connections with the professional world of Advertising and Graphic Design. The Ad Club offers association with the American Advertising Federation, and gives members real life experiences such as design jobs for other Wake Tech Clubs and non-profit organizations. Skill, information, connections, creativity, and exposure are the mission of the Wake Tech Ad Club.

Archaeology Club*

The purpose of this club is to promote awareness about Archaeology: what it is, how it is done, and its importance in society, not just from the historical sense, but the present and future as well. Members will gain experience in teamwork and communication by engaging in hands-on archaeological field methods through participation in an ongoing offsite excavation.

Amateur Radio Society*

The Amateur Radio Society is a club established by and for students who are interested in amateur radio. The club is affiliated with the amateur radio headquarters, the ARRL (American Radio Relay League). The club radio station is WB4TOP under the trusteeship of a retired member of the faculty, a licensed ham operator. Many students have contributed to the collection of radio contact reports, or QSL's, from all continents of the world, more than 100 countries, and all 50 states. Besides being the only community college in North Carolina with such a station, Wake Tech is also a member of the U.S. Army's MARS network (Military Affiliate Radio System).

It is the only collegiate radio club with such membership and operates under the assigned call AAR4CWT. MARS membership extends the frequency range over which licensed students can operate and increases the enjoyment of amateur radio operation. Students who desire ham licensing may work toward this end with the assistance of the club trustee.

The Architecture Club*

The purpose of this club shall be to promote excellence in architecture education, training and practice; foster an appreciation of architecture and related disciplines; and to organize architecture students and combine their efforts to advance the science and art of architecture.

Association of Nursing Students (ANS)*

The ANS is a professional on-campus nursing organization. The purpose of the organization is to contribute to nursing education by providing programs of professional interest and concern and to aid in the development of the student's professional role and personal growth.

Campus Crusade for Christ*

To serve the student body, the College, and the community by implementing the teachings of Jesus Christ in various ways.

Clinical Laboratory Science Student Association (CLSSA)*

The purpose of this association is to promote the delivery of quality health care by establishing a forum to encourage high standards and maximum achievement and to raise public awareness of the depth and scope of the work performed by clinical lab personnel.

Criminal Justice Club (CJC)*

The purpose of the club is to bridge the gap between textbook learning and the actual work experience; to foster interactions between students and local criminal justice agencies; to create more hands-on activities for criminal justice students; to make available peer tutoring within the criminal justice curriculum; to create unity among criminal justice students; and to provide a greater understanding of the criminal justice system.

Culinary Club

The purpose of this club is to promote excellence in culinary education, training, and practice; foster an appreciation of culinary arts and related disciplines; and to organize culinary students and combine their efforts to advance the science and art of the culinary field.

Design and Garden Club*

The purpose of the club is for the members to enlarge their knowledge of the world of design and realize that pictures are one thing, but actually being in a space widely acknowledged by design professionals and historians to be significant to the profession of environmental design is quite another thing altogether. Also, members will have the opportunity to see interesting and unusual plants and do a bit of gardening now and then.

Drama Club

The purpose of this club is for the members to engage in applied activities utilizing their theatrical knowledge to foster interactions among the students and to help students use their talents in serving their community. Furthermore, the club allows communication between students and faculty as well as fosters professional relationships with peers at higher educational institutions and promotes relevant discussion about various career possibilities within theater arts.

Early Childhood Association*

The Early Childhood Association will support students' growth and development by promoting campus and community involvement for the education and development of young children. As a group they will involve the department, campus, and surrounding communities in raising awareness of the importance of the early childhood profession as well as addressing policies, needs, and concerns related to children, families, and early childhood professionals.

Economics Club*

The purpose of the Economics Club is to inform members of the significance of economics and its role in the modern world; to provide opportunities for students to interact in learning situations outside of the classroom; to provide opportunities for students to participate in adult learning-oriented activities; to encourage a deeper understanding of the inter-workings of commerce and trade beyond the textbook and into real world practice; to promote intercultural relations, tolerance, and trade; and to improve students' desire for entrance into economics-related occupations and establish intrinsic rewards for a student's desire to develop self-motivated learning.

Gospel Choir

The purpose of this organization is to apply the spirit of leadership and clarify the understanding of student success; to enhance the talents and gifts of individuals as well as to encourage and stimulate an interest for music.

Government and Politics Club*

The purpose of the Government and Politics club is to provide a forum for campus students to learn more about the political processes at the national, state, and local levels of government; to facilitate political related interactions and discussions among students; and to provide opportunities for students to engage and interact with state and/or local government.

Heritage Club*

The purpose of the organization is to inform and discuss heritages, history, and contributions in America to be better prepared for the future; to provide opportunities for the students to interact with positive role models; to advise and work with the administration to improve student life; and to provide an opportunity for students to participate in service-oriented activities.

History Club*

The purpose of this club is for the members to engage in applied activities utilizing their historical knowledge; to foster interactions between students and historians in the workforce; to foster professional relationships with peers at higher educational institutions; to promote relevant discussion (beyond the classroom) about current discoveries and topics in the historical world; to learn about various career possibilities; and to promote the development of informed, conscientious citizens through a better understanding of the impact of history in their lives.

Human Services Student Association*

The purpose of the Human Services Student Association shall be to serve those students interested in a career in the human services field or related field. Furthermore, the purpose of this organization will be to promote and encourage advancements in the human service field; including, but not limited to, community service issues and the betterment of treatment of all persons.

Institute of Electrical and Electronic Engineers (IEEE)

The purpose of the IEEE shall be the dissemination of knowledge of the theory of practice of all aspects of electrical engineering, electronics, radio, and allied branches of engineering to related arts and sciences, as well as the furtherance of the professional development of the students.

International Friends (IF)*

The International Friends Club addresses issues important to both American and international students. Some of the purposes of this organization will be to enhance communication between international and American students; to promote good will and international understanding through sharing cultures with fellow students. The club advisors assist other departments in their work with international students as well as with American students who are pursuing fluency in other languages or have other interests. The organization provides an information network of services for international students. For more information call 866-5426.

Math Club*

The purpose of the Wake Tech Math Club is to establish a group to promote mathematics at Wake Technical Community College to all students.

Phi Beta Lambda*

Phi Beta Lambda is a professional business organization open for membership to any student regularly enrolled in a business curriculum. The organization was chartered to provide a medium for students to improve scholarship and develop qualities that will enable them to participate effectively in business, professional, and community life.

Phi Theta Kappa (PTK)*

Phi Theta Kappa, international honor society of the two-year college, offers opportunities in scholarship, leadership, services, and fellowship to fellow scholars of all ages, ethnic backgrounds, economic levels, and fields of study. To be eligible for membership, a student must have completed 24 credit hours of course work in an A.A., A.S., or A.A.S. curriculum program at Wake Technical Community College with at least a 3.7 GPA.

Philosophy Club

The purpose of this organization is to advance and clarify the understanding of philosophy and philosophical ideas. In addition, the organization will provide information about the different areas of study within the realm of philosophy as well as provide social activities for the members, which can be a base for exchange of ideas and experience. The organization will provide education about issues in philosophy and most importantly strengthen critical thinking skills through intellectual discussions.

Psychology Club*

The purpose of the Psychology Club is to advance the science of Psychology on the Wake Tech campus through educational and service opportunities. In addition, the club provides opportunities for the exchange of ideas and experiences among members.

Science Club*

The purpose of this club is for the members to engage in more applied, hands-on activities in biology; to foster interactions between students and various local agencies such as museums; to promote in-depth discussions (beyond classroom level) on relevant topics such as cancer, AIDS, etc.; to make available peer tutoring for biology courses; to learn about and discuss various career opportunities; and to provide a greater understanding and appreciation of our biological world.

Student Leadership Academy*

This program provides an excellent opportunity for Wake Tech Student Leaders who are involved in campus clubs and organizations. The program is designed to provide all participants with skills and knowledge to become more self-affirming, self-directed, open, and empathetic in communicating with others, while obtaining the skills and strategies needed to plan and implement activities and manage groups of people. Completion of the Student Leadership Academy will strengthen leadership skills to be used in College as well as in the workplace. Training will include workshops on various topics as well as round table discussions with leaders.

Sigma Delta Mu*

The purpose of this national honor society is to honor those who seek and attain excellence in the study of the Spanish language and in the study of literature and the culture of Spanish speaking peoples. The honor society also honors those who strive to make the Hispanic contribution to modern culture better known to the English speaking peoples. To be eligible for membership, a student must have studied at least one semester of Spanish or the equivalent thereof at the college that grants membership, with a minimum GPA of 3.0. The student must rank in the upper 35 percent of the class (freshman or sophomore) or, if this ranking is not available, have a cumulative GPA of at least 2.75.

Society of Manufacturing Engineers (SME)*

The purpose of the organization is to enhance the academic success of the membership through the dissemination of materials and information about the field of manufacturing engineering. The society coordinates and communicates with the graduate society, both national and international, to keep abreast with new activities in the field.

Student Ambassadors*

A very elite group of students is the Wake Technical Community College Student Ambassadors. They are selected for their high academic achievement, enthusiasm, and leadership. The Ambassadors serve Wake Tech and its students at campus and community activities by conducting campus tours, hosting College events, and speaking with community groups, agencies, and local schools.

Student American Dental Hygienists' Association*

The Student American Dental Hygienists' Association (SADHA) is a category of membership for students within the American Dental Hygienists' Association (ADHA). ADHA is an association of the profession. ADHA is dedicated to the advancement and promotion of dental hygiene.

Student Medical Assisting Club*

The purpose of the Student Medical Assisting Club of Wake Technical Community College is to provide information to render a better understanding of the medical assisting field as well as to provide information about the study of medical assisting and the application of medical assisting techniques.

Student Radiologic Technologists Association (SRTA)*

The SRTA is a professional on-campus radiologic technology organization. The purpose of the organization is to increase the public awareness of the importance of qualified radiographers performing radiologic examinations; to aid a charitable organization through monetary and volunteer actions; to assist student radiographers in continuing education efforts and/or programs; and to supply financial support for the seniors' annual pinning ceremony.

TACTICS (Teaching Advocacy and Career Training While Incorporating Curriculum Support)*

The purpose of TACTICS is to promote campus awareness and understanding of disabilities and to provide a peer support system for students with disabilities. The members will provide support for one another and share common experiences in a comfortable environment. Members will also provide information and sponsor a variety of activities that promote disability awareness and the integration of students with disabilities into the life of the College, helping them participate in and benefit from programs and activities enjoyed by all students.

Wake Tech Computer Club*

The purpose of the Wake Tech Computer Club is to assist members in exploring opportunities in the computer information technology field and to develop a sense of professionalism among members. The Wake Tech Computer Club also gives students a chance to improve their computer skills and to network with the professional community. The Wake Tech Computer Club offers a forum in which new technology trends in software and hardware are explored.

Wake Technical Community College Emergency Medical Science Student Association*

The purpose of this association shall be to provide information, activities, and minimal financial assistance for curriculum-related activities for students in the Wake Tech EMS Association; and to foster an appreciation of the Emergency Medical Services program and related disciplines; and to organize EMS students and combine their efforts to advance the science and art of emergency medicine.

Traffic Rules and Regulations

Ordinance Governing Traffic, Parking, and Registration of Motor Vehicles

Revised June 2006

Be it resolved that, pursuant to the authority vested in it by Chapter 115D-21 of the General Statutes of North Carolina, the Board of Trustees of Wake Technical Community College adopts and records in its proceedings the following rules governing parking, traffic, and registration of motor vehicles on the campuses of Wake Technical Community College. These regulations are intended only to supplement the Motor Vehicle Laws of North Carolina, all provisions of which, under the terms of the above statute, now apply to the campuses of Wake Technical Community College. From the date of filing of these regulations in the Office of the Secretary of State, they shall apply to and be in effect on the streets, roads, alleys, sidewalks, walkways, parking spaces, parking areas, and parking lots on all parts of the campuses of Wake Technical Community College.

A. ARTICLE I. GENERAL PROVISIONS

Section 1. Definitions

1. "Abandoned vehicle" means a motor vehicle that has remained parked for a period of more than ten (10) days or which is determined to be "derelict" under North Carolina General Statute 20-137.7.
2. "Employee" means the faculty, administrative staff, clerical personnel, and all other non-student personnel of the College employed part-time or full-time as permanent or temporary employees.
3. "No parking area" means any area not specifically marked, striped, or designated for parking.
4. "Parking area" means any place or area specifically set aside, marked, or assigned by Facility Services for the parking of vehicles, either permanently or temporarily.
5. "Repeat offender" means any person committing three (3) or more traffic and/or parking violations within the academic year.
6. "Student" means a person registered for full- or part-time academic study and who is not also an employee of the College.
7. "Visitor" means any individual not identified by this section as an employee or student.

Section 2. Authority

1. As approved by North Carolina General Statutes, Chapter 115D-21, the Board of Trustees of Wake Technical Community College through their designee, Facility Services, shall be responsible for the registration, flow, and parking of vehicles on property owned or leased in whole or in part by the State of North Carolina and that is under control of the Board of Trustees of Wake Technical Community College. Notwithstanding the above, the Registrar shall be responsible for the registration of student vehicles. The provisions of the regulations shall apply to the operators of all vehicles that are operated on any of the College's campuses, and they shall be in force and effect twenty-four hours a day, except as herein provided.
2. The **Facilities Services Office**, acting pursuant to the authority vested by this Ordinance and the Board of Trustees, shall exercise discretion and authority in such a manner as to insure the proper conduct of the necessary business of the College and shall exercise discretion and authority over the effective utilization and control of the available parking areas and facilities on the campuses of the College for the benefit and maximum convenience of students, faculty, staff, and visitors.
3. **Liability.** Wake Technical Community College assumes no liability or responsibility for damage to or theft of personal property or of any vehicle parked or in operation on the properties leased by or under the control of the Board of Trustees of the College.

Section 3. Violation of Ordinance

1. In addition to the criminal penalties set out by the North Carolina General Statutes, any person violating this or any regulation issued hereunder is subject to a civil penalty as set forth in this Ordinance.
2. **Rules of Evidence.** When a vehicle is found to be in violation of this Ordinance, it shall be considered prima facie evidence that the vehicle was parked:
 - a) by the person holding the College parking permit for that vehicle, or
 - b) by the person on file as owner of said vehicle with the North Carolina Division of Motor Vehicles or corresponding agency of another state.

B. ARTICLE II. VEHICLE REGISTRATION AND PARKING PERMITS

Section 1. Permit Eligibility

1. **General Provision.** All faculty, staff, and students in good standing with the College are eligible for and may obtain a parking permit. Each motor vehicle parked on the campus by students, faculty, and staff must be registered with the College and must display a valid, official vehicle parking permit issued by the College.
2. **Handicapped Parking Permit.** All faculty, staff, and students in good standing with the College who possess a valid "handicapped placard" or "distinguishing license plate" issued to them pursuant to North Carolina General Statute 20-37.5 are eligible for and may obtain a distinguishable Handicapped Parking Permit. The following requirements must be met to obtain a Handicapped Parking Permit:
 - a) Complete a Wake Technical Community College **VEHICLE REGISTRATION** card.
 - b) Present a registration card for the handicapped parking placard or distinguishing license plate issued to them pursuant to North Carolina General Statute 20-37.5.
3. **Parking permits** become invalid under the following conditions:
 - a) Ownership of the vehicle is transferred to another person or entity.
 - b) The permittee's association with the College terminates.
 - c) The time period for which the permit is issued expires.
 - d) The permittee is issued another permit relating to the same vehicle.
 - e) The permittee's privilege to park and operate a vehicle is forfeited as a result of the imposition of disciplinary sanctions.
 - f) The permittee has established a pattern of abuse of parking privileges by committing three (3) or more traffic or parking violations per academic year.

Section 2. Registration of Motor Vehicles.

1. **Faculty/Staff.** Registration of employee vehicles is conducted through the Personnel Records Office. There is no cost for vehicles operated by employees and no limit on the number of vehicles that can be registered. It should be noted that faculty/staff parking permits are for the exclusive use of faculty/staff only. This does not entitle relatives of faculty/staff to park in staff spaces, even if the vehicle has a staff/faculty parking permit. Staff/faculty parking permits need not be renewed except when the permit is worn or illegible.
2. **Students.** Registration of student vehicles will be conducted as a part of the normal College registration process. A vehicle brought onto the campus after college registration must be registered promptly.
3. Parking permits will be issued in conjunction with student identification badges and will be valid for one (1) academic year beginning August 1 and expiring July 31.
4. The vehicle parking permit shall be properly affixed to and displayed on the motor vehicle for which it is issued. Permits issued for four-wheel vehicles are to be placed on the left side of the rear window of such vehicle. Permits issued for two-wheel vehicles are to be placed on the rear of the vehicle.
5. Faculty, staff, and students issued a motor vehicle registration permit shall be responsible for parking violations involving the vehicle for which the permit is issued.
6. Students registered for classes at the Health Sciences Campus must obtain an entry key card for the parking deck. Temporary parking permits must be obtained whenever a permittee's vehicle is unavailable and the permittee seeks to park or drive another vehicle on campus.
7. **Visitors.** Visitors to the campus, as defined in Article I, are not required to obtain a parking permit, but may park only in those parking spaces designated for visitor and/or general parking.

C. ARTICLE III. PARKING AND TRAFFIC RULES AND REGULATIONS

Section 1. General Provision

Faculty, staff, and students are subject to discipline in accordance with the provisions of this Ordinance and College policy and procedure.

Section 2. Rules and Regulations

1. No vehicle shall be driven in a careless or reckless manner or in a direction opposite to that indicated by appropriate signs or markings on roadways that are designated as one-way streets.
2. For purpose of determining the speed limit on the campus, the campuses shall be deemed a business district, and the speed limit shall be 20 miles per hour.
3. Vehicles parking in non-parallel parking spaces shall be parked with the front end of the vehicle at the angle to the curb indicated by marking or signs, and no vehicle shall be parked in such a manner as to occupy more than one space. All vehicles must park in the direction of the flow of the traffic pattern.
4. Vehicles parking in a designated handicapped parking space must display a distinguishable handicapped parking permit issued by the college or, a valid handicapped placard or distinguishable license plate issued to the operator or passenger pursuant to North Carolina General Statute 20-37.5. Any person parking in a designated handicapped

5. parking space must comply with the requirements of North Carolina General Statute 20-37.6 "Parking privileges for handicapped drivers and passengers".
6. Parking in the following places is prohibited: on a sidewalk or walkway; along the main driveway entering the College; in the driving lanes of parking areas; in loading or unloading areas; in fire lanes; on the grass or landscaped areas; in the approaches or other portions of parking areas that are not clearly marked for parking.
7. Neither faculty, staff, nor student vehicles may use those parking spaces specifically reserved for certain persons or functions.
8. Agents designated by the Administration shall have authority to remove to a place of storage at the owner's expense any vehicle illegally stopped, parked, or abandoned.

Section 3. Enforcement

1. The College shall reserve the right to revoke any parking privileges and to remove a repeat offender's valid parking permit for flagrant violation of the Traffic Rules and Regulations, including failure to pay fines.
2. **Fines.** The Accounting Office is hereby authorized to collect a fine in the following amounts for a violation of this Ordinance.

a) Back-in parking in parking space	\$ 5.00
b) Driving in a hazardous manner	5.00
c) Driving wrong way in drive lanes	5.00
d) Failure to display current parking decal	5.00
e) Failure to register vehicle	5.00
f) Failure to heed stop or yield sign	5.00
g) Improper display of parking decal	5.00
h) Parking in manner creating a hazard	5.00
i) Parking in more than one parking space	5.00
j) Parking in non-parking space	5.00
k) Parking in unauthorized space	5.00
l) Parking incorrectly in space	5.00
3. **Towing.** The Manager of Security is hereby authorized to have towed (or use other lawful means of enforcement), from the campuses of the College to a designated place of storage, any vehicle in violation of the following and under the following circumstances:
 - a) unauthorized parking in a handicapped space
 - b) unauthorized parking in reserved space
 - c) parking in area not designated for parking
 - d) repeated violation of the parking rules
 - e) abandoned vehicles
4. In addition to any fine assessed for a violation of this Ordinance, the owner of a vehicle that is towed from the College is responsible for payment of any towing and/or storage fee charged for such towing.
5. **Notice of North Carolina State Law Concerning Towed Vehicles.** Wake Technical Community College provides a petition/appeal procedure for the resolution of both towing and parking violations. Additionally, North Carolina G.S. 20-219.11 provides the following remedy:
 - a) Whenever a vehicle with a valid registration plate or registration is towed as provided in G.S. 20-219.11, the authorizing person shall immediately notify the last known registered owner of the vehicle of the following:
 - i. a description of the vehicle;
 - ii. the place where the vehicle is stored;
 - iii. the violation with which the owner is charged, if any;
 - iv. the procedure the owner must follow to have the vehicle returned to him; and
 - v. the procedure the owner must follow to request a probable cause hearing on the towing.
 - b) The owner or any other person entitled to claim possession of the vehicle may request in writing a hearing to determine if probable cause existed for the towing. The request shall be filed with the magistrate in the county where the vehicle was towed. The magistrate shall set the hearing within 72 hours of his receiving the request.
 - c) The only issue at this hearing is whether or not probable cause existed for the towing. If the magistrate finds that probable cause did exist, the tower's lien continues. If the magistrate finds that probable cause did not exist, the tower's lien is extinguished.
 - d) Any aggrieved party may appeal the magistrate's decision to district court.

For a more complete explanation of the above procedure, refer to North Carolina General Statutes, Chapter 20-219.11.

Section 4. Suspension of Parking Privileges

The Manager of Security may, in addition to any other penalty, suspend the parking privileges, for up to one year, of any individual found to be a repeat offender in flagrant violation of this Ordinance.

Section 5. Failure to Settle Fines, Fees, and Charges

Failure to settle outstanding traffic and parking fines, fees, and/or charges within fourteen (14) days after issuance of a citation can result in the College arranging for the collection of fees assessed against faculty, staff, students, and visitors in the following manner.

- Penalties owed by faculty members and other employees of the College may be deducted from payroll checks.
- Penalties owed by students will be forwarded to the Registrar and a hold is placed on the student's records until the penalties are paid.

Section 6. Petition/Appeal Procedure

1. Individuals issued a parking and/or traffic citation may appeal the violation by returning within seven (7) calendar days of the date of the violation notice a Traffic Violation Appeal form to the Traffic Appeals Review Board. The Appeal forms are available at the switchboard located in Holding Hall on the Main Campus. Unless other procedures are specified in this section, the appeal and all arguments in support of the appeal will be submitted to the Traffic Appeals Review Board in writing. The Traffic Appeals Review Board Administrator will consider the written statement of the appellant and relevant documents or information submitted by the Manager of Security.
 - a) The Traffic Appeals Review Board Administrator shall review the appeal and respond by mail to the address provided on the appeal form.
 - b) Only official appeals received within seven (7) calendar days of the violation notice, excluding official College holidays, will be accepted for review. The right to appeal a violation notice is considered waived upon expiration of the 7-day appeal limitation period. No untimely appeals will be accepted for review.
 - c) If the appellant's driving or parking privileges are suspended or revoked, the appellant will be allowed the opportunity to appear before the Traffic Appeals Review Board and provide relevant information in addition to the information previously provided in writing.
 - d) The decisions of the Traffic Appeals Review Board are final, except as otherwise provided herein and by College policy and procedure.
2. **Appeal Hearings.** Individuals whose (1) driving and/or parking privileges are suspended and (2) whose vehicle is towed may request a hearing to appeal the matter by submitting a written request to the Manager of Security. The written request for an Appeals Hearing must be received within fourteen (14) calendar days of the date of the decision giving rise to the appeal. The individual will be notified in writing of the hearing date, time, and location. Each individual is permitted one continuance of the hearing if he/she is unable to attend on the specified date.
3. The membership of the Traffic Appeals Review Board will consist of a Traffic Appeals Review Board Administrator, one (1) faculty member, one (1) staff member, and two (2) student members.
4. **Appointment to Traffic Appeals Review Board.** The President of the Faculty Association will appoint the faculty member. The President of the Staff Council will appoint the staff member. The Student Government Association President will appoint student members. The term of office will be for a one-year period, beginning in September and ending in August. There will be no limit to the number of terms served. Members will serve until successors are appointed.
 - a) The Manager of Security or his designee may attend each hearing to clarify any operational questions that may arise.
 - b) The Traffic Appeals Review Board Administrator will chair the hearing. The Administrator will bring the hearing to order and introduce the appellant, provide written or oral summation of the ruling, disperse completed appeal forms to each member of the board, maintain time restrictions with regard to testimony, dismiss the appellant, and call for a vote from each member of the Traffic Appeals Review Board. The Administrator will make note of the decision regarding the appeal. The Administrator is a non-voting member of the Board, except when it is necessary to break a tie vote.
 - c) The Traffic Appeals Review Board will meet when necessary. The Traffic Appeals Review Board Administrator is responsible for notifying the appellant and Board members of the time, date, and location of the hearing. In emergency situations (such as a student not being allowed to register for classes or an employee not receiving an employment contract due to pending traffic appeals) and between regularly scheduled meetings of the Traffic Appeals Review Board, the Board Administrator may render decisions on traffic appeals.
 - d) The decision reached by the Traffic Appeals Review Board is final, except as otherwise provided by College policy and procedure. If the appeal is denied, payment of the fine is due immediately.

Section 7. Judgment Factors

1. All facts stated on the appeal form and presented by the appellant.
2. Any information provided by the Manager of Security to include previous violations records.
3. Information noted on the parking violation notice.
4. The issuing officer's testimony.
2. The rules and regulations of this Ordinance.

CONTINUING EDUCATION PROGRAMS

CONTINUING EDUCATION PURPOSE

Wake Technical Community College plays an active role in the continuing education of the citizens of the Capital area. The College's Continuing Education programs provide courses for those who need to train, retrain, and update themselves in a vocational or professional area, for those who desire instruction enabling them to grow in basic knowledge, improve in home and community life, and develop or improve leisure time activities, and for those individuals whose education stopped short of high school graduation.

CONTINUING EDUCATION UNITS

Wake Technical Community College awards Continuing Education Units (CEU's) for non-credit courses and special activities. A permanent transcript will be established for each non-credit student. The transcript will be updated each time the student completes a non-credit course. CEU's will be awarded for non-credit courses satisfactorily completed on the basis of one CEU for each ten hours of instruction. Fractions of CEU's will be awarded. Thus, a 66-hour course meeting three hours per evening, two evenings per week for eleven weeks will earn the student 6.6 CEU's. CEU's will not be awarded to students who fail to complete a course satisfactorily. Certificates will be awarded upon completion of courses that earn CEU's.

The Southern Association of Colleges and Schools became the first regional accrediting agency to require that all member institutions use the CEU to document non-credit special activities.

Students who have taken non-credit classes may request copies of their transcript by writing the Registrar, giving their name, address, and social security number.

ADMISSION AND REGISTRATION

Any adult, 18 years of age or older and not enrolled in public school, may be admitted to an adult education class. In extenuating circumstances, and upon the approval of the appropriate public school principal or superintendent, a person 16-18 years of age may enroll in certain courses. A course schedule is published and made available to the public prior to the beginning of each term. Information about all continuing education classes may be obtained on the college website www.waketech.edu or by calling the college at (919) 866-5420.

Wake Technical Community College

CLASS LOCATIONS

Many continuing education courses and services are provided on the main campus. Other classes are conducted in surrounding communities or within a particular business or industry in Wake County. Almost any course can and will be organized in other areas of the county when a sufficient number of citizens indicate an interest in having a class brought to a particular location, providing there's an instructor and suitable facility.

OCCUPATIONAL EXTENSION COURSE REPETITION

Special provision legislation states that "Community colleges may permit a student to repeat a course more than once if that student demonstrates that the course repetition is required by standards governing the certificate or licensing program in which the student is enrolled."

A minimum registration fee will be charged those who have taken an occupational extension class more than twice in a five-year period and who are not exempt. (See Expenses section regarding exemptions.) An individual who takes a course more than twice will pay at least the amount an individual will pay who has taken it less than twice. A predetermined rate of \$4.96 per scheduled hour will be charged to those individuals who have taken an occupational extension class more than twice and are not otherwise exempt.

COURSE DESCRIPTIONS

Although course descriptions for continuing education courses are not provided in this publication, examples of the types of courses that are offered are listed. Specific course descriptions are furnished upon request. Courses, in addition to those listed in this publication, may be offered to meet expressed needs of the community when evidence of these needs is presented to the College.

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EXPENSES

A registration fee is charged for Community Service and Occupational Continuing Education courses:

Number of Hours	Registration Fee
1-10	\$50
11-30	55
31-100	60
over 100	65

There is an additional fee for classes held at Community Schools.

The registration fee is waived for students enrolling in special classes for fire service, rescue, and law enforcement personnel, Wake Technical Community College full-time employees (one course per term), citizens over the age of 65, and prison inmates. The registration fee is not charged for Adult Basic Education programs, for preparatory instructional programs for the High School Diploma Equivalency Certificate (GED), for the Adult High School Diploma program, or for English as a Second Language program. There is a \$7.50 fee for final GED testing.

CONTINUING EDUCATION WITHDRAWAL AND REFUND

Refund requests and withdrawals must be made **in writing** by the student (no exceptions). Refund request forms are available at each class site. A request for refund may be made by letter.

1. A 100-percent refund shall be made if the student officially withdraws from the class before the first class meeting by submitting a written request.
2. A 75-percent refund shall be made if the student officially withdraws from the class prior to or on the 10-percent date of scheduled hours.
Community school, facility, and lab fees are not refundable.
3. A full refund shall be made for classes canceled by the College. You do not have to request a refund.

CONTINUING EDUCATION TRANSFER POLICY

Transfers to a different course in the same semester are allowed up until the 10-percent point of the total number of hours in both classes. A student may not transfer to a course that has passed the 10-percent point. Transfers from one semester to another are not allowed.

Transfer requests **must** be in writing. Requests received after the 10-percent deadline will not be considered, and a refund will not be processed.

BASIC SKILLS ADMISSION AND PLACEMENT POLICY

Wake Tech admits all adults into the College and makes every effort to place students in programs where they can experience success and meet their goals. Basic Skills offers educational opportunities in several areas, including Adult Basic Education (ABE), General Educational Development (GED), Adult High School (AHS), English as a Second Language (ESL), and Compensatory Education (CED). Placement into these programs is determined by standardized assessment tools. If students do not demonstrate progress in their placement level within 50 hours of attendance, they will be moved to another level in Basic Skills or referred to other College programs or an appropriate agency.

POLICY ON ADMISSION OF MINORS, NON-HIGH SCHOOL GRADUATES, INTO THE BASIC SKILLS PROGRAM

This policy applies to Wake Technical Community College and is in addition to State Board of Community College policies as published in North Carolina Administrative Code, 23 NCAC 2C.0300, Admission to Colleges and 23 NCAC 2C.0305, Education Services for Minors. This policy specifically addresses non-high school graduates' admission into the Basic Skills Program excluding English as a Second Language (ESL):

1. Non-high school graduates who are 16 or 17 years of age will not be allowed to enroll in the Basic Skills Program before a minimum of six months from the official date of withdrawal from a public or private high school **or** from a home school program.
2. The student must exhaust any suspension period given the student by a public or private high school **or** a home school program in addition to the College's six-month waiting period before being eligible for enrollment in the College's Basic Skills Program.
3. The Administration of Wake Technical Community College has the express authority of the Board of Trustees to implement necessary procedures for enforcement and regulation of this policy.

PROGRAMS

Basic Skills

Basic Skills programs are offered throughout Wake County to help adults:

- Learn to read.
- Improve math, reading, and writing skills.
- Earn an adult high school diploma or GED high school diploma equivalency.
- Learn English as a second language.
- Develop basic skills needed in the work place.

Basic Skills programs also help:

- Developmentally disabled persons achieve their potential.
- Families strengthen literacy skills and family bonds.
- Underemployed/unemployed persons prepare for employment or further education.
- Business and industry develop a highly skilled work force.

Basic Skills Programs *Adult Basic Education*

Adult Basic Education is designed to assist individuals who need to improve their skills in reading, writing, and/or mathematics. Instruction covers the fundamentals of mathematics, reading, and oral and written communications.

There are no fees or charges of any kind. All materials have been especially prepared for adults and instructional plans emphasize individual needs and interests. Students enroll in Adult Basic Education to improve skills for the work place, achieve personal goals, and/or enroll in one of the College's high school completion programs. Classes are offered on the main campus, at the Adult Education Center, and at community sites throughout Wake County.

General Educational Development (GED)

The General Educational Development program offers instruction for adults who are preparing for the GED exam. Instruction covers high school level reading, writing, mathematics, science, and social studies skills. Students may prepare for the exam on the main campus, at the Adult Education Center, or at a community site. Materials are provided to students, and there is no tuition.

Those achieving a passing score on all five sections of the exam receive a high school equivalency diploma from the North Carolina State Board of Community Colleges. The GED is generally recognized as a high school equivalency for purposes of college admission and employment.

Wake Technical Community College has two GED Testing Centers, one located on the main campus and the other at the Adult Education Center. Students are required to pay a (one-time only) \$7.50 testing fee when they take the official GED exam.

Adult High School Diploma

The Adult High School Diploma program is provided through a cooperative arrangement between Wake Technical Community College and the Wake County Board of Education with the College serving as the administering agency. Adult High School provides academic courses in a lab setting. Students are placed in courses in English, mathematics, social studies, science, and in electives based on their previous high school transcripts and acceptable scores on a standard battery of tests administered prior to program admission.

The Adult High School diploma program is offered at the Adult Education Center. Upon completion of "job ready" activities, the required credits, and successful completion of the North Carolina Competency Test, students are awarded an adult high school diploma. There are no tuition fees; however, students must purchase some books and materials.

Compensatory Education

Compensatory Education is for adults with developmental disabilities who want to improve their academic, social, and vocational skills and achieve their full potential. The Compensatory Education program operates year-round in close coordination with mental health professionals and agencies.

In addition to classes offered in cooperation with area service providers and agencies, some locations serve students from the broader community. Parents or guardians of adults with developmental disabilities who would like additional information about the program should contact the Compensatory Education coordinator. The program is offered free of charge.

English as a Second Language

English as a Second Language (ESL) is designed for students whose native language is not English. The program focuses on addressing English for life skills, such as filling out various forms, seeking medical attention, or helping parents of young children to navigate the public school system. ESL classes give students the opportunity to increase their level of communication with emphasis on speaking, listening, reading and writing skills. Instructors also assist students in pre-employment preparation, community interaction, cultural enrichment, and professional and academic advancement.

ESL classes are offered free of charge at the Adult Education Center and various locations throughout the county. Students may enroll at any location until the classes are full.

HEP PROGRAM

The High School Equivalency Program (HEP) is a grant from the United States Department of Education, Migrant Education Division, to Wake Technical Community College and a collation of service organizations to provide migrant and seasonal farm workers and their families the necessary training to obtain a GED (high school equivalency certificate).

Business and Industry Services

In today's fast-paced digital economy, businesses must seek new knowledge and leverage new technologies if they are to survive and grow. The Business and Industry Services Division serves the lifelong learning needs of the business community.

The Business and Industry Center (BIC) is located at the Western Wake Campus in Cary where it provides classes and seminars. It also offers customized employee training at employer sites as well as other area locations.

Apprenticeship Training

Wake Tech has been designated by the North Carolina Community College System as a center for formal apprenticeship training. The College assists companies that are participating in a customized apprenticeship training program by providing the related classroom instruction.

Focused Industrial Training (FIT)

Wake Tech assists area industries in training and retraining employees with courses that range from basic fundamental skills to sophisticated technical skills to skills in supervision and management.

Human Resources Development WORKFORCE HRD

The workforce human resources development (HRD) program provides pre-employment training, career assessment, and job assistance for adults. The goal of the program is employment or further education.

New and Expanding Industry (NEIT)

The new and expanding industry training program provides customized training assistance in support of new, full-time production positions created in the state of North Carolina. This enhances the growth potential of companies located in the state while simultaneously preparing North Carolina's workforce with the skills essential to successful employment in emerging industries.

Management Development Program

To meet the supervisory and managerial needs of business and industry, Wake Tech offers management development programs in sales training, computer skills, problem solving, office occupations, project management, import logistics and international marketing.

Small Business Center (SBC)

Wake Tech's Small Business Center (SBC) works to increase the success rate and number of viable small businesses in North Carolina by providing high quality, readily accessible assistance to prospective and existing small business owners and their employees. The Small Business Center provides education and training, information, and referral.

The Small Business Center has a library of printed materials available to assist with small business research and problem solving. The library includes books, pamphlets, magazines, trade journals, and a wide variety of tapes and videos.

Confidential counseling services and access to resource libraries are free of charge along with seminars and workshops.

Education Services and Technology

Continuing Education Registrar

This department ensures accuracy and quality in all Continuing Education programs to comply with the NC General Statutes, Title 23 of the NC Administrative Code, Continuing Education Guidelines, Numbered Memoranda and the Colleges' Accountability and Credibility Plan in all of Continuing Education registration and reporting processes.

Human Resources Development

JOB SKILLS HRD

Job Skills Human Resources Development (JSHRD) is a pre-vocational program offered by Wake Technical Community College. The program is designed to help unemployed and/or underemployed adults, ages 18 and older, enhance their existing skills and improve their employment opportunities. Courses are designed to meet the students' needs and to focus on skills that promote success in finding and maintaining employment. Class length and times vary.

One-on-one and group counseling sessions assist students in identifying and enhancing personal characteristics that lead to success with career goals. The following are standard components in JSHRD: self-appraisal, career planning, resume preparation, interviewing, job search strategies, and communication skills.

Human Resources Development

WORKFORCE HRD

The workforce human resources development (HRD) program provides pre-employment training, career assessment, and job assistance for adults. The goal of the program is employment or further education.

Non-Credit and Weekend Computer Education Program

The Non-Credit and Weekend Computer Education program provides computer courses that help adults develop new hardware and software skills and enhance existing technology skills. The program also provides industry standard certification preparation courses for individuals seeking certification in the following areas: A+ Hardware and Software, Oracle, Oracle DBA, Oracle PL/SQL, Java, Computer Security, Visual Basic, Networking, and

Linux, through traditional and online programs.

The goal of the program is to enrich personal and workplace computer skills, enhance employment opportunities and job advancement. The following are examples of the large variety of courses offered for this purpose:

ASP .NET
Digital Photography
Dreamweaver
Flash
Graphic Design
Introduction to Personal Computers and Windows
Microsoft Office
Programming Languages
3-D Computer Graphics, Modeling & Animation
Photoshop
AutoCAD for Windows
MySQL

Special Projects

This department provides program management for division and departmental projects, develops program strategies, goals, and time frames for program implementation, and seeks funding to implement and sustain new and existing programs for workforce development through special projects and grants.

Evening and Weekend Programs

Occupational Training and Upgrading

An ongoing priority of Wake Technical Community College is to offer evening and weekend programs that provide credit and non-credit courses appropriate to the needs of the working adult. These programs focus on assisting adult students, who are primarily part-time students, in developing new skills to obtain employment or to change career paths, and on helping students upgrade their skills to maintain employment. Programs for personal development are also offered in the evening.

Primary to this effort is the resolve to offer evening sections of each program that the College provides. This occurs as the need is introduced and resources permit. Offering a series of evening courses from a program for certificate credit is another strategy used by the institution for meeting the educational needs of working students. A third strategy employed is to provide a variety of single courses or a cluster of related courses that provide job specific information and that may apply toward credit should a student decide to enroll in a program.

Wake Tech holds the position that students should have the opportunity to apply the knowledge and skills learned in the classroom in a work setting, and hence provides a cooperative education program for this purpose. Evening students may take advantage of this opportunity upon request. Since Wake Tech's evening students are usually attending school at night on a part-time basis while working during the day on a full-time basis, cooperative education placements are generally not available for part-time evening students. However, if an evening student wishes to participate in the cooperative education program, he or she should contact the Director of Cooperative Education.

Other services available to students enrolled in the Evening Program include the following: tutorial assistance and individualized learning programs through the Individualized Learning Center or Special Populations, library services, counseling and registration services, and book store operations. Evening students enrolled for at least nine (9) credit hours, having paid the required administration fee, may participate in all student activities including the Student Government Association.

Occupational training and upgrading courses provide training for specific job skills essential to successful employment.

New skills are taught and present skills are updated in order to make an employee more efficient on the job, to improve the chances for advancement to a new job, or to meet legislated requirements. The following are examples of the large variety of courses offered for this purpose:

Automotive Repair
 Building Trades
 Business Management
 Computer Skills
 Electrical-Electronics Trade
 Foreign Languages
 Internet-based Instruction
 Machine Trades & Welding
 Medical Terminology, Coding, and Transcription
 Plumbing
 Real Estate Updates

Wake County Community School Program

The goal of Community Schools is to make quality educational and recreational experiences available in convenient locations at reasonable costs. Through interagency cooperation a variety of offerings are

provided for the general public. Wake Technical Community College actively supports and participates in this program by offering numerous credit and continuing education courses at local schools four evenings per week.

Evening Curriculum Program Offerings

For detailed information concerning Wake Tech's Evening Program offerings, refer to those sections of this catalog that contain descriptions of the day offerings. Current curriculum programs offered in the evening and on Saturdays include:

- ◆ **College/University Transfer**
 Associate in Arts (A.A.)
 Associate in Science (A.S.)
 Associate in Science—Pre-Major: Engineering (A.S.)

- ◆ **General Education**
 Associate in General Education (A.G.E.)

- ◆ **Associate Degree Programs (2 years)**
 Accounting
 Advertising and Graphic Design
 Business Administration
 Business Administration/Electronic Commerce
 Business Administration/Human Resources Management
 Civil Engineering Technology
 Computer Engineering Technology
 Computer Information Technology
 Computer Programming
 Criminal Justice Technology
 Database Management
 Early Childhood Associate
 Electronics Engineering Technology
 High Performance Computing
 Hotel Restaurant Management
 Human Services Technology
 Human Services Technology/Developmental Disabilities
 Human Services Technology/Substance Abuse
 Information Systems Security
 Industrial Engineering Technology
 Mechanical Engineering Technology
 Networking Technology
 Simulation and Game Development
 Surveying Technology
 Web Technologies

- ◆ **Diploma Programs** (12 months)
 - Early Childhood Associate
 - Medical Assisting
 - Simulation and Game Development
 - Therapeutic Massage
- ◆ **Certificate Programs** (3-24 months)
 - Advertising and Graphic Design:
 - Graphics and Design
 - Web and Graphic Design
 - Air Conditioning, Heating, and Refrigeration
 - Architectural Technology: Architectural CAD
 - Automation Engineering Technology:
 - PLC Programming
 - Robotics
 - Basic Law Enforcement Training
 - Business Administration:
 - Customer Service
 - Sales Development
 - Business Administration/Human Resources Management
 - Computer Engineering Technology:
 - C-Programming—Open Source Development
 - Linux Kernel Development
 - Pentium System Architecture
 - Computer Information Technology:
 - Computer Forensics
 - Hardware Troubleshooting (A+)
 - IT Support Technician (MCDST)
 - Microsoft Office Specialist (MOS)
 - IT Support Management
 - Spreadsheet Management
 - Computer Programming:
 - C++ Programming
 - Computer Science
 - JAVA Programming
 - Visual Basic Programming
 - Construction Management Technology
 - Culinary Technology: Basic Skills Certificate
 - Database Management:
 - Oracle DBA Programming
 - Oracle Developer
 - Early Childhood Associate:
 - Infant/Toddler Care
 - Electrical/Electronics Technology:
 - Commercial Wiring Methods
 - Residential Wiring Methods
 - Electronics Engineering Technology: Basic Electronics
 - High Performance Computing:
 - Bioinformatics Computing
 - Linux/Red Hat Administration
 - Heavy Equipment and Transport Technology/Construction Equipment Systems:
 - Fuel Injection, Electrical, and Electronics

- Hydraulics, Engines, and Transmissions
- Human Services Technology/Substance Abuse
- Industrial Engineering Technology:
 - Quality Assurance
 - Advanced Quality Assurance
- Information Systems Security:
 - Network Security Administration
- Machining Technology
- Machining Technology: CNC Machining
- Machining Technology/Tool, Die, and Mold Making: Mold Making
- Mechanical Drafting Technology
- Mechanical Engineering Technology:
 - Mechanical Design
 - Thermal Mechanics
- Medical Office Administration:
 - Medical Billing and Coding
 - Medical Office Specialist
 - Medical Transcription Specialist
- Networking Technology:
 - CISCO Certified Network Assoc. (CCNA)
 - CISCO Certified Network Prof. (CCNP)
 - Microsoft Certified Systems Engineer (MCSE)
- Nursing Assistant
- Office Systems Technology:
 - Integrated Office Systems
 - Office Publications Certificate
 - Office Specialist I
 - Office Specialist II
 - Word Processing
- Office Systems Technology/Legal
- Real Estate
- Real Estate Appraisal
- Web Technologies:
 - E-Commerce Programming
 - Web Developer
 - Web Designer
- Welding Technology
- ◆ **Preparatory Courses**
 - High School Algebra
 - High School Chemistry
 - Mathematics Fundamentals
 - Reading Improvement
 - Study Skills
 - Writing Fundamentals
- ◆ **Weekend Programs**
 - Computer Programming:
 - Internet Programming
 - Visual Basic Programming
 - Early Childhood Credential Courses
 - Information Systems: Networking
 - Networking Technology: MCSE
 - Visual Basic Certificate

Assorted courses from other curricula are also offered evenings and Saturdays.

Public Safety and Service Occupations Division

The following program areas provide training to public safety personnel and to persons who wish to increase their individual competencies in specialized occupational areas.

Health Education Services

Courses are designed to meet the needs of local EMS agencies, healthcare providers, and the public with emphasis on emergency patient care in traditional pre-hospital and nontraditional environments. Health education courses are also designed to assist individuals desiring employment or retraining in health institutions or related fields.

Fire Service Training

Fire Service Training is delivered directly to individual fire departments. Training held in local fire departments allows personnel to utilize equipment they will actually use in controlling fires. Fire Service classes include:

- Arson and Unlawful Burning
- Fire Apparatus Practices
- Fire Fighting Practices
- Forcible Entry
- Hazardous Materials
- Ladder Practices
- Portable Fire Extinguishers
- Protective Breathing Equipment
- Rescue Practices
- Rope Practices
- Salvage and Overhaul Practices
- The Company Officer
- Ventilation

Related courses in Fire Service Training include industrial brigade training, home fire safety, search, and rescue.

Service Occupations

This program trains individuals in the area of food service, lodging, travel information, and vocational occupations. The primary objectives include providing employers with well-trained personnel to operate their business and developing individuals with skills that will qualify them for better employment opportunities. Hospitality training is arranged and

scheduled in accordance with the needs of the industry. Vocational training is provided in the areas of plumbing, electrical wiring, heating and air conditioning and carpentry.

Corrections Education

Corrections Education is delivered to immured individuals in Wake County's judicial system. The primary purpose of the training is to increase the safety of the general public by reducing the recidivism rate through training.

Public Safety and Homeland Security

Public Safety and Homeland Security courses are designed as in-service and pre-service education for those engaged in law enforcement activities and are provided at the request of these agencies. Program emphasis is on legal and technological law enforcement advancements. Courses such as the following are offered in many areas:

- Child Passenger Safety Training
- Community Policing
- Criminal Investigation
- Domestic Disturbance Response
- D.W.I. Detection
- Effective Report Writing
- Firearms Training
- First-Line Supervision
- Homeland Security
- Juvenile Law
- Laws of Arrest, Search, and Seizure
- Motor Vehicle Laws
- Narcotics Investigation
- Radar Certification
- Spanish for Law Enforcement
- Traffic Accident Investigation

CONTINUING EDUCATION GRADING POLICY

All classes except Adult High School classes use the S-U system.

Grade	Explanation
S	Satisfactory (attended at least 90% of scheduled class hours)
*U	Unsatisfactory
*NG	No grade
*W	Withdrew

*CEU's are not awarded with these grades.

Continuing Education Units (CEU's)

Those courses that earn CEU's do so on the basis of one CEU per ten contact hours.

Adult High School classes use the A-F system.

Grade	Explanation
A (93-100)	Excellent
B (85-92)	Above average
C (78-84)	Average
D (70-77)	Below average
F (0-69)	Unsatisfactory
W	Withdrew

ASSOCIATE DEGREE PROGRAMS*

College/University Transfer

Associate in Arts (A.A.)
Associate in Science (A.S.)
Associate in Science—Pre-Major: Engineering (A.S.)

General Education

Associate in General Education (A.G.E.)

Associate in Applied Science (A.A.S.)**

Accounting
Advertising and Graphic Design
Air Conditioning, Heating, and Refrigeration
Technology
Architectural Technology
Associate Degree Nursing
Automotive Systems Technology
Business Administration
Business Administration/Electronic Commerce
Business Administration/Human Resources
Management
Civil Engineering Technology
Computer Engineering Technology
Computer Information Technology
Computer Programming
Criminal Justice Technology
Culinary Technology
Database Management
Dental Hygiene
Early Childhood Associate
Electrical/Electronics Technology
Electronics Engineering Technology
Emergency Medical Science
Environmental Science Technology
General Occupational Technology
Heavy Equipment and Transport Technology
Heavy Equipment and Transport Technology/
Construction Equipment Systems
High Performance Computing

Hotel and Restaurant Management
Human Services Technology
Human Services Technology/Developmental
Disabilities
Human Services Technology/Substance Abuse
Industrial Engineering Technology
Industrial Pharmaceutical Technology
Industrial Systems Technology
Information Systems Security
Landscape Architecture Technology
Machining Technology
Machining Technology/Tool, Die,
and Mold Making
Manufacturing Technology/Plastics †
Mechanical Drafting Technology
Mechanical Engineering Technology
Medical Assisting
Medical Laboratory Technology
Medical Office Administration
Networking Technology
Office Systems Technology
Office Systems Technology/Legal
Radiography
Simulation and Game Development
Surveying Technology
Web Technologies

† These programs are not open to new students.



*Changes may have been made since the printing of this catalog. Students should be in contact with their advisors for updates.

**Students admitted to programs that require a clinical or co-op component may be required to provide the college with an official criminal background check in order to meet the requirements of the clinical or co-op site. Convictions for certain crimes and/or evidence of drug use may disqualify students from participating in clinical or co-op experiences, which would limit their progress toward graduation.

COLLEGE/UNIVERSITY TRANSFER

The College/University Transfer program is designed for the person who wishes to transfer to a four-year institution. The program offers two degrees, the Associate in Arts and the Associate in Science. By enrolling in this program, the student may complete course work equivalent to the general education requirements for the bachelor's degree at a senior institution.

The Associate in Arts or the Associate in Science is awarded upon successful completion of 64 hours, including the minimum in each of the areas indicated on the curriculum outline.

ASSOCIATE IN ARTS — A10100 OFFICIAL CURRICULUM SCHEDULE

COURSE REQUIREMENTS	CREDIT HOURS
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Composition 6

ENG 111
ENG 112 or ENG 113 or ENG 114

Humanities/Fine Arts 12

Select 4 courses from at least 3 discipline areas.
At least 1 literature course is required.

*HUM 220 is required.

ART 111, 114, 115, 116, 117
COM 110, 120, 231
DRA 111, 112, 115, 122, 126
ENG 131, 231, 232, 241, 242, 261, 262
FRE 111 (and 181), 112 (and 182), 211 (and 281),
212 (and 282)
HUM 110, 115, 130, 160, 211, 212, *220
LAT 111 (and 181), 112 (and 182), 211 (and 281), 212
(and 282)
MUS 110, 112, 113, 114, 213
PHI 210, 215, 220, 221, 240
REL 110, 111, 112, 211, 212
SPA 111 (and 181), 112 (and 182), 211 (and 281),
212 (and 282)

Social/Behavioral Sciences 12

Select 4 courses from at least 3 discipline areas.
At least 1 history course is required.

ANT 210, 220, 221, 230 (and 230A), 240
ECO 151, 251, 252
GEO 111
HIS 111, 112, 121, 122, 131, 132
POL 110, 120, 210
PSY 150, 237, 239, 241, 281
SOC 210, 213, 220, 225

Natural Sciences 8

Select from the following list. (If you select BIO 110, you may not select BIO 111 or BIO 112.)
AST 111 (and 111A), 151 (and 151A), 152 (and 152A)
BIO 110, 111, 112, 120, 130, 140 (and 140A)
CHM 131 (and 131A), 151, 152
GEL 111, 113, 120, 230
PHY 151, 152, 251, 252

Mathematics 7-8

A. Select 1 course (and lab) from the following list.

MAT 140 (and 140A)
MAT 161 (and 161A)
MAT 171 (and 171A)

B. Select 1 course (and lab) from the following list.

(If MAT 161 was selected from List A, then MAT 171 or MAT 175 may not be selected; if MAT 171 was selected from List A, then MAT 161 or MAT 175 may not be selected.)

CIS 110
CIS 115

MAT 151 (and 151A)
MAT 155 (and 155A)
MAT 161 (and 161A)
MAT 165 (and 165A)
MAT 171 (and 171A)
MAT 172 (and 172A)
MAT 175 (and 175A)
MAT 263 (and 263A)
MAT 271
MAT 272
MAT 273

Electives 18-19

Select from entire list of courses.

Graduation Requirements **64 Credit Hours**

COURSE LIST

Associate in Arts

ACC 120, 121	GEL 111, 113, 120, 230
ANT 210, 220, 221, 230, 230A, 240	GEO 111
ART 111, 113, 114, 115, 116, 117, 121, 122, 130, 131, 132, 140, 240, 244, 281	HEA 110, 112
AST 151, 151A, 152, 152A	HIS 111, 112, 117, 121, 122, 131, 132, 161, 162, 167, 216, 221, 222, 226, 231, 236, 242, 251, 252, 271
BIO 110, 111, 112, 120, 130, 140, 140A, 145, 150, 165, 166, 168, 169, 180, 230, 231, 232, 242, 243, 250, 275 (You may not select both BIO 110 and BIO 111.)	HUM 110, 115, 130, 160, 161, 170, 211, 212, 220, 230
BUS 110, 115, 228	JOU 110, 242
CHM 151, 152, 251, 252, 261	LAT 111, 112, 181, 182, 211, 212, 281, 282
CIS 110, 115	MAT 140A, 141, 141A, 142, 142A, 155, 155A, 161, 161A, 165, 165A, 167, 167A, 171, 171A, 172, 172A, 175, 175A, 263, 263A, 271, 272, 273, 280, 285
CJC 111, 121, 141	MUS 110, 111, 112, 113, 114, 131, 132, 141, 142, 151, 161, 210, 212, 213, 214, 231, 232, 241, 242
COM 110, 111, 120, 130, 231, 232, 233, 251	PED 110, 121, 128, 130, 138, 139, 143, 175, 176, 177
CSC 120, 130, 134, 136	PHI 210, 215, 220, 221, 230, 240
DFT 170	PHY 151, 152, 153, 251, 252
DRA 111, 112, 115, 120, 122, 124, 126, 128, 130, 131, 140, 141, 145, 150, 170, 171, 230, 231, 243, 260, 270, 271	POL 110, 120, 130, 210
ECO 151, 251, 252	PSY 150, 237, 239, 241, 246, 259, 263, 281
EDU 216	REL 110, 111, 112, 211, 212
ENG 111A, 113, 114, 125, 126, 131, 231, 232, 234, 241, 242, 253, 261, 262, 271, 272, 273, 274, 275	SOC 210, 213, 220, 225, 242, 252
EGR 150, 220	SPA 111, 112, 141, 151, 161, 181, 182, 211, 212, 221, 281, 282
FRE 111, 112, 141, 151, 161, 181, 182, 211, 212, 221, 281, 282	

ASSOCIATE IN SCIENCE — A10400

OFFICIAL CURRICULUM SCHEDULE

COURSE REQUIREMENTS **CREDIT HOURS**

Composition.....6

ENG 111
ENG 112 or ENG 113 or ENG 114

Humanities/Fine Arts.....9

Select 3 courses from 3 discipline areas.

One literature course is required; select from the following: ENG 131, 231, 232, 241, 242, 261, 262.

Select 2 additional courses from 2 of the following discipline areas:

ART 111, 114, 115, 116, 117
COM 110, 120, 231
DRA 111, 112, 115, 122, 126
FRE 111 (and 181)
HUM 110, 115, 130, 160, 211, 212, or 220
MUS 110, 112, 113, 114, 213
PHI 210, 215, 220, 221, 240
REL 110, 111, 112, 211, 212
SPA 111 (and 181)

Social/Behavioral Sciences.....9

Select 3 courses from 3 discipline areas.

One history course is required; select from the following:
HIS 111, 112, 121, 122, 131, 132.

Select 2 additional courses from 2 of the following discipline areas:

ANT 210
ECO 251, 252
GEO 111
POL 110, 120, 210
PSY 150
SOC 210, 213, 220, 225

Natural Sciences.....8

Select one of the following sequences.

BIO 111 and 112
CHM 151 and 152
PHY 151 and 152
PHY 251 and 252

Mathematics..... 6

MAT 171 (and 171A), 172 (and 172A)
Higher mathematics courses may be substituted if placement warrants.

Additional Natural Sciences/Mathematics 6

AST 111, 111A, 151, 151A, 152, 152A
BIO 110, 111, 112, 120, 130, 140, 140A (You may not select both BIO 110 and BIO 111.)
CHM 151, 152
GEL 111, 113, 120, 230
MAT151 (and 151A) or 155 (and 155A), 175 (and 175A), 271, 272, 273 (You may not select both MAT 151/151A and MAT 155/155A.)
PHY 151, 152, 251, 252 (You may not select both PHY 151/152 and PHY 251/252.)

Mathematics, Natural Sciences, or Computer Science Electives 14

A minimum of 14 hours in mathematics, natural sciences, or computer sciences is required

AST 111, 111A, 151, 151A, 152, 152A
BIO 110, 111, 112, 120, 130, 140, 140A, 145, 150, 168, 169, 230, 231, 232, 242, 243, 250, 275 (You may not select both BIO 110 and BIO 111.)
CHM 151, 152, 251, 252, 261
CIS 110, 115
CSC 120, 130, 134, 136, 151
GEL 111, 113, 120, 230
MAT 151 (and 151A) or 155 (and 155A), 167 (and 167A), 175 (and 175A), 271, 272, 273, 280, 285 (You may not select both MAT 151/151A and MAT 155/155A.)
PHY 151, 152, 251, 252 (You may not select both PHY 151/152 and PHY 251/252.)

Other Electives 6

Select from A.S. Course List.

Graduation Requirements 64 Credit Hours

COURSE LIST

ASSOCIATE IN SCIENCE

ACC 120, 121	GEL 111, 113, 120, 230
ANT 210, 220, 221, 230, 230A, 240	GEO 111
ART 111, 113, 114, 115, 116, 117, 121, 122, 130, 131, 132, 140, 240, 244, 281	HEA 110, 112
AST 111, 111A, 151, 151A, 152, 152A	HIS 111, 112, 117, 121, 122, 131, 132, 161, 162, 167, 216, 221, 222, 223, 226, 236, 251, 252
BIO 110, 111, 112, 120, 130, 140, 140A, 145, 150, 168, 169, 180, 230, 231, 232, 242, 243, 250, 275	HUM 110, 115, 130, 160, 161, 170, 211, 212, 220, 230
BUS 110, 115	JOU 110
CHM 151, 152, 251, 252, 261	MAT 141 (and 141A), 142 (and 142A), 151 (and 151A), 155 (and 155A), 167 (and 167A), 171A, 172A, 175 (and 175A), 271, 272, 273, 280, 285
CIS 110, 115	MUS 110, 111, 112, 113, 114, 131, 132, 141, 142, 151, 161, 210, 212, 213, 214, 231, 232
CJC 111, 121, 141	PED 110, 121, 128, 130, 138, 139, 143, 175, 176, 177
COM 110, 111, 120, 130, 231, 232, 233, 251	PHI 210, 215, 220, 221, 230, 240
CSC 120, 130, 134, 136, 151	PHY 151, 152, 153, 251, 252
DFT 170	POL 110, 120, 130, 210
DRA 111, 112, 115, 120, 122, 124, 126, 128, 130, 131, 140, 141	PSY 150, 237, 239, 241, 246, 259, 263, 281
ECO 151, 251, 252	REL 110, 111, 112, 211, 212
EDU 216	SOC 210, 213, 220, 225, 242, 252
EGR 150, 210, 211, 212, 213, 220, 225, 228, 230	SPA 111 (and 181), 112 (and 182), 141, 151, 161, 211 (and 281), 212 (and 282), 221
ENG 111A, 113, 114, 125, 126, 131, 231, 232, 234, 241, 242, 253, 261, 262, 271, 272, 273, 274, 275	
FRE 111 (and 181), 112 (and 182), 141, 151, 161, 211 (and 281) 212 (and 282)	

ASSOCIATE IN SCIENCE—Pre-Major: Engineering—A1040D

OFFICIAL CURRICULUM SCHEDULE

COURSE REQUIREMENTS **CREDIT HOURS**

Composition.....6

ENG 111
ENG 112 or ENG 113 or ENG 114

Humanities/Fine Arts.....9

Select 3 courses from 3 discipline areas.
One literature course is required; select from the following: ENG 131, 231, 232, 241, 261, 262.
Select 2 additional courses from 2 of the following discipline areas:

ART 111, 114, 115, 116, 117
COM 110, 120, 231
DRA 111, 112, 115, 122, 126
FRE 111 (and 181)
HUM 110, 115, 130, 160, 211, 212, 220
MUS 110, 112, 113, 114, 213
PHI 210, 215, 220, 221, 240
REL 110, 111, 112, 211, 212
SPA 111 (and 181)

Social/Behavioral Sciences.....9

Select 3 courses from 3 discipline areas.
One history course is required; select from the following:
HIS 111, 112, 121, 122, 131, 132.
Select 2 additional courses from two of the following discipline areas:

ANT 210
ECO 251, 252 (One ECO course is recommended.)
GEO 111
POL 110, 120, 210
PSY 150
SOC 210, 213, 220, 225

Natural Sciences12

The following courses are required:

CHM 151
PHY 251
PHY 252

Mathematics.....8

The following courses are required:
MAT 271 and MAT 272

Other Required Hours20-21

MAT 273 and MAT 285
One of the following courses is required: CSC 134 or CSC 136 or CSC 151
Students must select one of the following courses: CHM 152 or DFT 170 or EGR 220

An additional 7 hours of approved college transfer courses are required. Choose from the following:

ACC 120, 121
ANT 210, 220, 221, 230, 230A, 240
ART 111, 113, 114, 115, 116, 117, 121, 122, 130, 131, 132, 140, 240, 244, 281
AST 111, 111A, 151, 151A, 152, 152A
BIO 111, 112, 120, 130, 140, 140A, 145, 168, 169, 230, 231, 232, 250, 275
BUS 110, 115
CHM 152, 251, 252, 261
CIS 110, 115
CJC 111
COM 110, 111, 120, 130, 231, 232, 233, 251
CSC 120, 130, 134, 136, 151
DFT 170
DRA 111, 112, 115, 120, 122, 124, 126, 128, 130, 131, 140, 141
ECO 251, 152
EDU 216
EGR 150, 210, 211, 212, 213, 220, 225, 228, 230
ENG 111A, 125, 126, 131, 231, 232, 234, 241, 242, 253, 261, 262, 271, 272, 273, 274, 275
FRE 111 (and 181), 112 (and 182), 211 (and 281) 212 (and 282)
GEL 113, 120, 230
HEA 110, 112
HIS 111, 112, 117, 121, 131, 132, 161, 162, 167, 216, 221, 222, 223, 226, 236, 251, 252
HUM 110, 115, 130, 160, 161, 170, 211, 212, 220, 230
JOU 110
MAT 151 (and 151A) or 155 (and 155A), 167, 280
MUS 110, 111, 112, 131, 132
PED 110, 121, 128, 130, 138, 139, 143, 175, 176, 177
PHI 210, 215, 220, 221, 230, 240
POL 110, 120, 130, 210
PSY 150, 237, 239, 241, 246, 259, 263, 281
REL 110, 111, 112, 211, 212
SOC 210, 213, 220, 225, 242, 252
SPA 111 (and 181), 112 (and 182), 211 (and 281), 212 (and 282)

Graduation Requirements64-65 Credit Hours

GENERAL EDUCATION

The General Education curriculum is designed for individuals who wish to broaden their education, with emphasis on personal growth, intellectual enrichment, and improvement in general knowledge. The curriculum provides an introduction to the liberal arts (general education) in a program that can be tailored to the student's personal interests rather than to specific technical or professional requirements.

The Associate in General Education is awarded upon completion of 64 hours, including the minimum in each of the areas on the curriculum outline.

ASSOCIATE IN GENERAL EDUCATION — A10300 OFFICIAL CURRICULUM SCHEDULE

COURSE REQUIREMENTS	CREDIT HOURS	
English/Communications	6	
ENG 111 Expository Writing (3 0 3)		
ENG 114 Professional Research and Reporting (3 0 3)		
Humanities/Fine Arts	3	
Select from courses in art, foreign language, humanities, literature, music, philosophy, and religion.		
Social/Behavioral Sciences	3	
Select from courses in economics, history, political science, psychology, and sociology.		
Natural Sciences/Mathematics	3	
Select from courses in biology, chemistry, geology, physics, and mathematics.		
Computer Science	2	
CIS 111 Basic PC Literacy (1 2 2)		
Electives	47	
Select from associate degree level courses in English/communications, humanities/fine arts, social/behavioral sciences, and natural sciences/mathematics, or any specialty courses as selected by the student and approved by the student's advisor.		
Graduation Requirements	64 Credit Hours	

specialization. A maximum of sixteen hours of elective credit may be granted as follows:

- I. Sixteen semester hours of credit for full-time trade school instruction (twelve months/1440 hours) in one special skilled area. Certified by transcript, diploma, or letter from trade school. Maximum sixteen semester hours of credit.
- II. One semester hour of credit per ninety hours of full-time trade school instruction for programs of less than one-year duration. Certified by transcript, diploma, or letter from trade school. Maximum sixteen semester hours of credit.
- III. One semester hour of credit per sixty hours of special short course instruction by a company-sponsored school. Certified by diploma, certificate, or letter from company school. Maximum three semester hours of credit.
- IV. Three semester hours of credit for a full year of employment (outside of Wake Technical Community College) in a situation where teaching was the primary employment. Maximum three semester hours of credit.
- V. Five semester hours of credit for each full year of employment at Wake Technical Community College with teaching the specialty courses as the primary responsibility. Maximum fifteen semester hours of credit.
- VI. One semester hour of credit for each full year of employment in the specialty occupation qualified to teach. Maximum five semester hours of credit.

ASSOCIATE IN GENERAL EDUCATION

Vocational and Technical Instructors' Option

This option is designed for teachers of vocational and technical programs in technical colleges, trade schools, high schools, and similar institutions, as well as for practitioners of specific vocations. In addition to completing the core requirements for the Associate in General Education degree, the student may receive credit for previous training, experience, and formal study in the student's area of

Credits earned in industrial and/or vocational programs offered by regionally-accredited, collegiate-level institutions are acceptable in meeting requirements in the area of specialization.

The student will be required to provide sufficient documentation to substantiate the suitability of previous training, experience, and formal study for credit.

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAMS

ACCOUNTING

The Accounting curriculum is designed to provide students with the knowledge and the skills necessary for employment and growth in the accounting profession. Using the "language of business," accountants assemble and analyze, process, and communicate essential information about financial operations.

In addition to course work in accounting principles, theories, and practice, students will study business law, finance, management, and economics. Related skills are developed through the study of communications, computer applications, financial analysis, critical thinking skills, and ethics.

Graduates should qualify for entry-level accounting positions in many types of organizations including accounting firms, small businesses, manufacturing firms, banks, hospitals, school systems, and governmental agencies. With work experience and additional education, an individual may advance in the accounting profession.

ACCOUNTING — A25100

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 115	Mathematical Models	3
PSY 118	Interpersonal Psychology	3
	Humanities/Fine Arts Elective	3

Major Courses

ACC 120	Principles of Financial Accounting	4
ACC 121	Principles of Managerial Accounting	4
ACC 129	Individual Income Taxes	3
ACC 130	Business Income Taxes	3
ACC 140	Payroll Accounting	2
ACC 149	Introduction to Accounting Spreadsheets	2
ACC 150	Accounting Software Applications	2
ACC 215	Ethics in Accounting	3
ACC 220	Intermediate Accounting I	4
ACC 221	Intermediate Accounting II	4
ACC 225	Cost Accounting	3
ACC 227	Practices in Accounting	3
ACC 240	Governmental and Not-for-Profit Accounting	3
ACC 268	Information Systems and Internal Controls	3
BUS 115	Business Law I	3
BUS 121	Business Math	3
BUS 225	Business Finance	3
CIS 111	Basic PC Literacy	2
ECO 151	Survey of Economics	3

Graduation Requirements 72 Credit Hours

ADVERTISING AND GRAPHIC DESIGN

The Advertising and Graphic Design curriculum is designed to provide students with knowledge and skills necessary for employment in the graphic design profession that emphasizes design, advertising, illustration, and digital and multimedia preparation of printed and electronic promotional materials.

Students will be trained in the development of concept and design for promotional materials, such as newspaper and magazine advertisements, posters, folders, letterheads, corporate symbols, brochures, booklets, preparation of art for printing, lettering and typography, photography, and electronic media.

Graduates should qualify for employment opportunities with graphic design studios, advertising agencies, printing companies, department stores, and a wide variety of manufacturing industries, newspapers, and businesses with in-house graphics operations.

ADVERTISING AND GRAPHIC DESIGN — A30100

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 115	Mathematical Models	3
PSY 118	Interpersonal Psychology	3
	Humanities/Fine Arts Elective	3

Major Courses

GRD 110	Typography I	3
GRD 111	Typography II	3
GRD 117	Design Career Exploration	2
GRD 121	Drawing Fundamentals I	2
GRD 131	Illustration I	2
GRD 141	Graphic Design I	4
GRD 142	Graphic Design II	4
GRD 151	Computer Design Basics	3
GRD 152	Computer Design Technology I	3
GRD 153	Computer Design Technology II	3
GRD 160	Photo Fundamentals I	3
GRD 241	Graphic Design III	4
GRD 263	Illustrative Imaging	3
GRD 265	Digital Print Production	3
GRD 280	Portfolio Design	4
GRD 282	Advertising Copywriting	2
GRD 285	Client/Media Relations	2

Major Electives List 1

Select 4 hours from the following courses

COE 113	Co-op Work Experience I	3
GRD 161	Photo Fundamentals II	3
GRD 162	Photography Portfolio	3
GRD 193	Selected Topics in Advertising and Graphic Design	3
GRD 230	Technical Illustration	2
GRD 232	Fashion Illustration	2
GRD 233	Product Illustration	2
GRD 242	Graphic Design IV	4
GRD 243	Graphic Design V	4
GRD 249	Advanced Design Practice	4
WEB 111	Introduction to Web Graphics	3
WEB 140	Web Development Tools	3

Major Electives List 2

Select 2 hours from the following courses

ART 114	Art History Survey I	3
CIS 110	Introduction to Computers	3
GRA 255	Image Manipulation I	2
GRD 175	3-D Animation Design	3
GRD 281	Design of Advertising	2
GRD 293	Selected Topics in Advertising and Graphic Design	3
WEB 120	Introduction to Internet Multimedia	3
WEB 211	Advanced Web Graphics	3

Graduation Requirements 71 Credit Hours

AIR CONDITIONING, HEATING, AND REFRIGERATION TECHNOLOGY

The Air Conditioning, Heating, and Refrigeration Technology curriculum provides the basic knowledge to develop skills necessary to work with residential and light commercial systems. Topics include mechanical refrigeration, heating and cooling theory, electricity, controls, and safety.

AAS degree graduates should be able to assist in the start up, preventive maintenance, service, repair, and/or installation of residential and light commercial systems and should be able to demonstrate an understanding of system selection and balance and advanced systems.

AIR CONDITIONING, HEATING, AND REFRIGERATION TECHNOLOGY — A35100

General Education Courses

ENG 110	Freshman Composition	3
COM 120	Interpersonal Communication	3
HUM 121	The Nature of America.....	3
PHY 121	Applied Physics I.....	4
PSY 118	Interpersonal Psychology	3

Major Courses

AHR 110	Introduction to Refrigeration	5
AHR 111	HVACR Electricity	3
AHR 112	Heating Technology.....	4
AHR 113	Comfort Cooling	4
AHR 114	Heat Pump Technology.....	4
AHR 115	Refrigeration Systems	2
AHR 130	HVAC Controls.....	3
AHR 133	HVAC Servicing	4
AHR 151	HVAC Duct Systems I	2
AHR 152	HVAC Duct Systems II	2
AHR 160	Refrigerant Certification	1
AHR 180	HVAC Customer Relations.....	1
AHR 210	Residential Building Code	2
AHR 211	Residential System Design	3
AHR 212	Advanced Comfort Systems.....	4
AHR 215	Commercial HVAC Controls.....	2
AHR 225	Commercial System Design.....	3
AHR 240	Hydronic Heating	2
AHR 245	Chiller Systems	2
AHR 250	HVAC System Diagnostics.....	2
AHR 263	Energy Management	2
WLD 112	Basic Welding Processes.....	2

Graduation Requirements..... 75 Credit Hours

ARCHITECTURAL TECHNOLOGY

The Architectural Technology curriculum provides individuals with knowledge and skills that can lead to employment in the field of architecture or one of the associated professions.

Students receive instruction in construction document preparation, materials and methods, environmental and structural systems, building codes and specifications, and computer applications as well as complete a design project. Optional courses may be provided to suit specific career needs.

Upon completion, graduates have career opportunities within the architectural, engineering, and construction professions as well as positions in industry and government.

ARCHITECTURAL TECHNOLOGY — A40100

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting.....	3
MAT 121	Algebra and Trigonometry	3
	Humanities/Fine Arts Elective.....	3
	Social/Behavioral Science Elective	3

Major Courses

ARC 111	Introduction to Architectural Technology	3
ARC 112	Construction Materials and Methods.....	4
ARC 113	Residential Architectural Technology	3
ARC 114	Architectural CAD.....	2
ARC 114A	Architectural CAD Lab.....	1
ARC 131	Building Codes	3
ARC 211	Light Construction Technology	3
ARC 213	Design Project	4
ARC 220	Advanced Architectural CAD	2
ARC 230	Environmental Systems	4
ARC 240	Site Planning	3
ARC 250	Survey of Architecture.....	3
ARC 264	Digital Architecture	2
CIV 110	Statics/Strength of Materials	4

Major Electives

Select 8 hours from the following courses

ARC 212	Commercial Construction Technology	3
ARC 221	Architectural 3-D CAD	3
ARC 241	Contract Administration.....	2
ARC 261	Solar Technology	2
ARC 293	Selected Topics in Architectural Technology	3
CIV 125	Civil/Surveying CAD.....	3
CIV 230	Construction Estimating	3
EGR 115	Introduction to Technology.....	4
LAR 230	Principles of Horticulture I	4
LAR 231	Principles of Horticulture II	3
SRV 110	Surveying I.....	4

Co-op Work Experience 1

Select 2 hours from the following courses

COE 112	Co-op Work Experience I.....	2
COE 111	Co-op Work Experience I.....	1
COE 121	Co-op Work Experience II.....	1

Co-op Work Experience 2

Select 2 hours from the following courses

COE 122	Co-op Work Experience II.....	2
COE 131	Co-op Work Experience III	1
COE 211	Co-op Work Experience IV	1

Graduation Requirements..... 68 Credit Hours

ASSOCIATE DEGREE NURSING

The Associate Degree Nursing (non-integrated) curriculum provides individuals with the knowledge and skills necessary to provide nursing care to clients and groups of clients throughout the life span in a variety of settings.

Courses will include content related to the nurse's role as provider of nursing care, as manager of care, as member of the discipline of nursing, and as a member of the interdisciplinary team.

Graduates of this program are eligible to apply to take the National Council Licensure Examination (NCLEX-RN), which is required for practice as a Registered Nurse. Employment opportunities include hospitals, long-term care facilities, clinics, physician's offices, industry, and community agencies.

ASSOCIATE DEGREE NURSING — A45120

General Education Courses

BIO 165	Anatomy and Physiology I	4
BIO 166	Anatomy and Physiology II	4
ENG 111	Expository Writing	3
ENG 112	Argument-Based Research	3
PSY 110	Life Span Development	3
	Humanities/Fine Arts Elective	3

Major Courses

BIO 155	Nutrition	3
BIO 175	General Microbiology	3
BIO 271	Pathophysiology	3
NUR 115	Fundamentals of Nursing	5
NUR 117	Pharmacology	2
NUR 125	Maternal-Child Nursing	8
NUR 133	Nursing Assessment	3
NUR 135	Adult Nursing I	9
NUR 185	Mental Health Nursing	5
NUR 235	Adult Nursing II	10

Major Electives

Select 3 hours from the following courses

NUR 116	Nursing of Older Adults	4
NUR 188	Nursing in the Community	3

Graduation Requirements 74 Credit Hours

AUTOMOTIVE SYSTEMS TECHNOLOGY

The Automotive Systems Technology curriculum prepares individuals for employment as automotive service technicians. It provides an introduction to automotive careers and increases student awareness of the challenges associated with this fast and ever-changing field.

Classroom and lab experiences integrate technical and academic coursework. Emphasis is placed on theory, servicing and operation of brakes, electrical/electronic systems, engine performance, steering/suspension, automatic transmission/transaxles, engine repair, climate control, and manual drive trains.

Upon completion of this curriculum, students should be prepared to take the ASE exam and be ready for full-time employment in dealerships and repair shops in the automotive service industry.

AUTOMOTIVE SYSTEMS TECHNOLOGY — A60160

General Education Courses

COM 120	Interpersonal Communication	3
ENG 110	Freshman Composition	3
HUM 121	The Nature of America	3
PHY 121	Applied Physics I	4
PSY 118	Interpersonal Psychology	3

Major Courses

AUT 110	Introduction to Automotive Technology	3
AUT 115	Engine Fundamentals	3
AUT 116	Engine Repair	2
AUT 131	Drive Trains	3
AUT 132	Drive Trains Lab	1
AUT 141	Suspension and Steering Systems	4
AUT 151	Brake Systems	3
AUT 152	Brake Systems Lab	1
AUT 161	Electrical Systems	4
AUT 162	Chassis Electrical and Electronics	3
AUT 171	Heating and Air Conditioning	3
AUT 185	Emission Controls	2
AUT 222	Advanced Auto Drive Trains	3
AUT 276	ASE Certification and Applications	6
AUT 281	Advanced Engine Performance	3
AUT 282	Engine Electrical Management	6
AUT 284	Emerging Automotive Technologies	4
CIS 111	Basic PC Literacy	2

Graduation Requirements 72 Credit Hours

BUSINESS ADMINISTRATION

The Business Administration curriculum is designed to introduce students to the various aspects of the free enterprise system. Students will be provided with a fundamental knowledge of business functions, processes, and an understanding of business organizations in today's global economy.

Course work includes business concepts such as accounting, business law, economics, management, and marketing. Skills related to the application of these concepts are developed through the study of computer applications, communication, team building, and decision making.

Through these skills, students will have a sound business education base for lifelong learning. Graduates are prepared for employment opportunities in government agencies, financial institutions, and large to small business or industry.

BUSINESS ADMINISTRATION — A25120

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 115	Mathematical Models	3
PSY 118	Interpersonal Psychology	3
	Humanities/Fine Arts Elective	3

Major Courses

ACC 120	Principles of Financial Accounting	4
ACC 121	Principles of Managerial Accounting	4
BUS 110	Introduction to Business	3
BUS 115	Business Law I	3
BUS 116	Business Law II	3

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BUS 121	Business Math.....	3
BUS 137	Principles of Management.....	3
BUS 139	Entrepreneurship I.....	3
BUS 153	Human Resource Management.....	3
BUS 225	Business Finance.....	3
BUS 239	Business Applications Seminar.....	2
CIS 111	Basic PC Literacy.....	2
CTS 135	Integrated Software Introduction.....	4
ECO 151	Survey of Economics.....	3
INT 110	International Business.....	3
MKT 120	Principles of Marketing.....	3
MKT 221	Consumer Behavior.....	3

Major Electives Group 1

Select a course from the following

BUS 125	Personal Finance.....	3
BUS 151	People Skills.....	3
MKT 123	Fundamentals of Selling.....	3
MKT 223	Customer Service.....	3
MKT 224	International Marketing.....	3

Major Electives Group 2

Select a course from the following

BUS 193	Selected Topics in Business Administration.....	3
BUS 234	Training and Development.....	3
BUS 245	Entrepreneurship II.....	3
BUS 285	Business Management Issues.....	3
ECM 210	Introduction to E-Commerce.....	3

Graduation Requirements 73 Credit Hours

**BUSINESS
ADMINISTRATION/ELECTRONIC
COMMERCE**

Electronic Commerce is a concentration under the title of Business Administration. This curriculum is designed to prepare individuals for a career in the Internet economy.

Course work includes topics related to electronic business, Internet strategy in business, basic business principles in the world of E-Commerce. Students will be able to demonstrate the ability to identify and analyze such functional issues as planning, technical systems, marketing, security, finance, law, design, implementation, assessment and policy issues at an entry level.

Graduates from this program will have a sound business educational base for life long learning. Graduates are prepared for employment opportunities in government agencies, financial institutions, and small to medium size businesses or industry.

**BUSINESS
ADMINISTRATION/ELECTRONIC
COMMERCE — A2512I**

General Education Courses

ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
MAT 115	Mathematical Models.....	3
PSY 118	Interpersonal Psychology.....	3
	Humanities/Fine Arts Elective.....	3

Major Courses

ACC 120	Principles of Financial Accounting.....	4
BUS 110	Introduction to Business.....	3
BUS 115	Business Law I.....	3
BUS 137	Principles of Management.....	3
BUS 225	Business Finance.....	3
CIS 110	Introduction to Computers.....	3

ECM 168	Electronic Business.....	3
ECM 210	Introduction to E-Commerce.....	3
ECM 220	E-Commerce Planning and Implementation.....	3
ECM 230	Capstone Project.....	3
ECO 151	Survey of Economics.....	3
MKT 223	Customer Service.....	3
	or	
BUS 151	People Skills.....	3
MKT 120	Principles of Marketing.....	3
WEB 110	Internet/Web Fundamentals.....	3
WEB 111	Introduction to Web Graphics.....	3
WEB 140	Web Development Tools.....	3

Major Electives

Select at least 3 hours from the following courses

ACC 121	Principles of Managerial Accounting.....	4
BUS 153	Human Resource Management.....	3
CIS 120	Spreadsheet I.....	3
COE 113	Co-op Work Experience I.....	3
INT 110	International Business.....	3
MKT 221	Consumer Behavior.....	3
MKT 224	International Marketing.....	3
WEB 120	Introduction to Internet Multimedia.....	3

Graduation Requirements67 Credit Hours

**BUSINESS ADMINISTRATION/
HUMAN RESOURCES
MANAGEMENT**

Human Resources Management is a concentration under the curriculum title of Business Administration. The curriculum is designed to meet the demands of business and service agencies. The objective is the development of generalists and specialists in the administration, training, and management of human resources.

Course work includes studies in management, interviewing, placement, needs assessment, planning, compensation and benefits, and training techniques. Also included are topics such as people skills, learning approaches, skills building, and development of instructional and training materials.

Graduates from this program will have a sound business educational base for lifelong learning. Students will be prepared for employment opportunities in personnel, training, and other human resources development areas.

**BUSINESS ADMINISTRATION/
HUMAN RESOURCES
MANAGEMENT — A2512C**

General Education Courses

ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
MAT 115	Mathematical Models.....	3
PSY 118	Interpersonal Psychology.....	3
	Humanities/Fine Arts Elective.....	3

Major Courses

ACC 120	Principles of Financial Accounting.....	4
ACC 140	Payroll Accounting.....	2
BUS 110	Introduction to Business.....	3
BUS 115	Business Law I.....	3
BUS 137	Principles of Management.....	3
BUS 153	Human Resource Management.....	3
BUS 217	Employment Law and Regulations.....	3
BUS 225	Business Finance.....	3

BUS 234	Training and Development	3
BUS 256	Recruitment, Selection, and Personnel Planning	3
BUS 258	Compensation and Benefits	3
BUS 259	HRM Applications	3
BUS 285	Business Management Issues	3
CIS 111	Basic PC Literacy	2
CTS 135	Integrated Software Introduction	4
ECO 151	Survey of Economics	3
MKT 120	Principles of Marketing	3

Computer Applications Electives

Select 3 hours from the following

CIS 152	Database Concepts and Applications	3
CIS 165	Desktop Publishing I	3
CIS 172	Introduction to the Internet	3

Graduation Requirements 69 Credit Hours

CIVIL ENGINEERING TECHNOLOGY

The Civil Engineering Technology curriculum provides the application of relevant theory of engineering needed by technicians to carry out planning and supervisory tasks in the construction of transportation systems, residential and commercial buildings, bridges, dams, and water and wastewater treatment systems.

Course work includes the communication and computational skills required to support the fields such as materials testing, structures, estimating, project management, hydraulics, environmental technology, and surveying. Additional course work will cover the operation of computers and application software including computer-aided drafting.

Graduates should qualify for technician-level jobs with both public and private engineering, construction, and surveying agencies.

CIVIL ENGINEERING TECHNOLOGY — A40140

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 121	Algebra and Trigonometry	3
	Humanities/Fine Arts Elective	3
	Social/Behavioral Science Elective	3

Major Courses

CIS 111	Basic PC Literacy	2
CIV 110	Statics/Strength of Materials	4
CIV 111	Soils and Foundations	3
CIV 125	Civil/Surveying CAD	3
or		
DFT 120	Advanced CAD	2
CIV 210	Engineering Materials	2
CIV 211	Hydraulics and Hydrology	3
CIV 221	Steel and Timber Design	3
CIV 230	Construction Estimating	3
CIV 240	Project Management	3
CIV 250	Civil Engineering Technology Project	2
COE 112	Co-op Work Experience I	2
DFT 119	Basic CAD	2
EGR 115	Introduction to Technology	4
MAT 122	Algebra/Trigonometry II	3
MAT 223	Applied Calculus	3
or		
GIS 111	Introduction to GIS	3

PHY 131	Physics-Mechanics	4
SRV 110	Surveying I	4
SRV 111	Surveying II	4
SRV 240	Topographic and Site Surveying	4
or		
GIS 112	Introduction to GPS	3

Graduation Requirements..... 70 Credit Hours

COMPUTER ENGINEERING TECHNOLOGY

The Computer Engineering Technology curriculum provides the skills required to install, service, and maintain computers, peripherals, networks, and microprocessor and computer controlled equipment. It includes training in both hardware and software, emphasizing operating systems concepts to provide a unified view of computer systems.

Course work includes mathematics, physics, electronics, digital circuits, and programming, with emphasis on the operation, use, and interfacing of memory and devices to the CPU. Additional topics may include communications, networks, operating systems, programming languages, Internet configuration and design, and industrial applications.

Graduates should qualify for employment opportunities in electronics technology, computer service, computer networks, server maintenance, programming, and other areas requiring a knowledge of electronic and computer systems. Graduates may also qualify for certification in electronics, computers, or networks.

COMPUTER ENGINEERING TECHNOLOGY — A40160

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 121	Algebra and Trigonometry	3
	Humanities/Fine Arts Elective	3
	Social/Behavioral Science Elective	3

Major Courses

CET 110	Introduction to Computer Engineering Technology	3
CET 111	Computer Upgrade/Repair I	3
CET 193	Selected Topics in CET	3
CET 222	Computer Architecture	2
CET 251	Software Engineering Principles	4
CSC 133	C Programming	3
CSC 233	Advanced C Programming	3
EGR 285	Design Project	2
ELC 131	DC/AC Circuit Analysis	5
ELN 131	Electronic Devices	4
ELN 133	Digital Electronics	4
ELN 232	Introduction to Microprocessors	4
ELN 233	Microprocessor Systems	4
MAT 122	Algebra/Trigonometry II	3
NOS 110	Operating System Concepts	3
NOS 120	Linux/UNIX Single User	3
PHY 151	College Physics	4
TNE 111	Campus Networks I	3

Major Electives

Select 2 hours from the following courses

CET 211	Computer Upgrade/Repair II	3
COE 112	Co-op Work Experience I	2
CSC 134	C++ Programming	3
CSC 139	Visual BASIC Programming	3
CSC 151	JAVA Programming	3
CSC 245	Advanced C/C++ Programming	3
ELN 132	Linear IC Applications	4
ELN 193	Selected Topics in Electronics	3
NOS 220	Linux/UNIX Administration	3
TNE 121	Campus Networks II	3
TNE 193	Selected Topics in Telecommunications	3
TNE 261	Internet Development	3

Graduation Requirements 75 Credit Hours

COMPUTER INFORMATION TECHNOLOGY

The Computer Information Technology curriculum is designed to prepare graduates for employment with organizations that use computers to process, manage, and communicate information. This is a flexible program, designed to meet community information systems needs.

Course work includes computer systems terminology and operations, logic, operating systems, database, data communications/networking, and related business topics. Studies will provide experience for students to implement, support, and customize industry-standard information systems.

Graduates should qualify for a wide variety of computer-related, entry-level positions that provide opportunities for advancement with increasing experience and ongoing training. Duties may include systems maintenance and troubleshooting, support and training, and business applications design and implementation.

COMPUTER INFORMATION TECHNOLOGY — A25260

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
HUM 115	Critical Thinking	3
MAT 145	Analytical Mathematics	3
MAT 145A	Analytical Mathematics Lab	1
PSY 118	Interpersonal Psychology	3

Major Courses

CIS 110	Introduction to Computers	3
CIS 115	Introduction to Programming and Logic	3
CTS 115	Information Systems Business Concept	3
CTS 120	Hardware/Software Support	3
CTS 135	Integrated Software Introduction	4
CTS 155	Tech Support Functions	3
CTS 220	Advanced Hardware/Software Support	3
CTS 255	Advanced Tech Support Functions	3
CTS 285	Systems Analysis and Design	3
CTS 289	System Support Project	3
DBA 110	Database Concepts	3
NET 110	Data Communications/Networking	3
NOS 110	Operating Systems Concepts	3
NOS 130	Windows Single User	3
NOS 230	Windows Administration I	3
SEC 110	Security Concepts	3

Major Electives List 1

Select 3 hours from the following courses

COE 111	Co-op Work Experience I	1
COE 112	Co-op Work Experience I	2
COE 113	Co-op Work Experience I	3
COE 121	Co-op Work Experience II	1
COE 122	Co-op Work Experience II	2
COE 131	Co-op Work Experience III	1
CTS 125	Presentation Graphics	3
CTS 130	Spreadsheet	3
CTS 210	Computer Ethics	3
CTS 235	Integrated Software Advanced	4
CTS 240	Project Management	3
CTS 250	User Support and Software Evaluation	3
NOS 111	Operating System—DOS	3
NOS 120	Linux/UNIX Single User	3
WEB 110	Internet/Web Fundamentals	3

Major Electives List 2

Select 3 hours from the following courses

CSC 139	Visual BASIC Programming	3
CTS 118	IS Professional Communication	2
CTS 230	Advanced Spreadsheet	3
CTS 287	Emerging Technologies	3
CTS 292	Selected Topics in Computer Information Technology: Support Center Leadership and Management	2
CTS 293	Selected Topics in Computer Information Technology: Post Advanced Applications	3
CTS 297	Seminar in Computer Information Technology: MCDST	2
CTS 298	Seminar in Computer Information Technology: Computer Forensics	3
DBA 115	Database Applications	3
NOS 220	Linux/UNIX Administration I	3

Graduation Requirements..... 71 Credit Hours

COMPUTER PROGRAMMING

This curriculum prepares individuals for employment as computer programmers and related positions through study and applications in computer concepts, logic, programming procedures, languages, generators, operating systems, networking, data management, and business operations.

Students will solve business computer problems through programming techniques and procedures, using appropriate languages and software. The primary emphasis of the curriculum is hands-on training in programming and related computer areas that provide the ability to adapt as systems evolve.

Graduates should qualify for employment in business, industry, and government organizations as programmers, programmer trainees, programmer/analysts, software developers, computer operators, systems technicians, database specialists, computer specialists, software specialists, or information systems managers.

COMPUTER PROGRAMMING — A25130

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
HUM 115	Critical Thinking	3
MAT 145	Analytical Math	3

MAT 145A	Analytical Math Lab.....	1
PSY 150	General Psychology.....	3

Major Courses

CIS 110	Introduction to Computers.....	3
CIS 115	Introduction to Programming and Logic.....	3
CSC 134	C++ Programming.....	3
CSC 139	Visual BASIC Programming.....	3
CSC 151	JAVA Programming.....	3
CSC 234	Advanced C++.....	3
CSC 239	Advanced Visual BASIC.....	3
CSC 251	Advanced JAVA Programming.....	3
CSC 289	Programming Capstone Project.....	3
CTS 115	Information Systems Business Concepts.....	3
CTS 285	Systems Analysis and Design.....	3
DBA 110	Database Concepts.....	3
NET 110	Data Communications/Networking.....	3
NOS 110	Operating System Concepts.....	3
NOS 120	Linux/UNIX Single User.....	3
SEC 110	Security Concepts.....	3

Major Electives List 1

Select 3 hours from the following courses

COE 113	Co-op Work Experience I.....	3
CSC 120	Computing Fundamentals I.....	4
CSC 141	Visual C++ Programming.....	3
CSC 152	SAS.....	4
CSC 153	C# Programming.....	3
DBA 120	Database Programming I.....	3
SGR 161	Introduction to 3-D Design.....	3
SGR 225	Numerical Analysis.....	4
SGR 233	Graphics Programming I.....	3
WEB 115	Web Markup and Scripting.....	3
WEB 182	PHP Programming.....	3
WEB 183	Perl Programming.....	3

Major Electives List 2

Select 3 hours from the following courses

COE		
CSC 130	Computing Fundamentals II.....	4
CSC 241	Advanced Visual C++ Programming.....	3
CSC 253	Advanced C# Programming.....	3
CSC 258	JAVA Enterprise Programs.....	3
DBA 115	Database Applications.....	3
DBA 220	Oracle Database Programming II.....	3
DBA 221	SQL Server Database Programming II.....	3
DBA 223	MySQL Database Programming II.....	3
SGR 131	Computer Graphics Concepts.....	4
SGR 162	Advanced 3-D Design.....	3
SGR 234	Graphics Programming II.....	3

Major Electives List 3

Select 3 hours from the following courses

CSC 249	Data Structures and Algorithms.....	3
CSC 278	JAVA Message Service.....	3
CSC 291	Selected Topics in Computer Programming.....	1
CSC 292	Selected Topics in Computer Programming.....	2
CSC 296	Seminar in Computer Programming.....	1
CSC 297	Seminar in Computer Programming.....	2
DBA 260	Oracle DBMS Administration.....	3
DBA 261	SQL Server DBMS Administration.....	3
DBA 263	MySQL DBMS Administration.....	3
SGR 231	Advanced Computer Graphics.....	4
SGR 293	Selected Topics in Scientific Graphics Technology.....	3
WEB 180	Active Server Pages.....	3
WEB 186	XML Technology.....	3

Graduation Requirements 73 Credit Hours

CRIMINAL JUSTICE TECHNOLOGY

The Criminal Justice Technology curriculum is designed to provide knowledge of criminal justice systems and operations. Study will focus on local, state, and federal law enforcement, judicial processes, corrections, and security services. The criminal justice system's role within society will be explored.

Emphasis is on criminal justice systems, criminology, juvenile justice, criminal and constitutional law, investigative principles, ethics, and community relations. Additional study may include issues and concepts of government, counseling, communications, computers, and technology.

Employment opportunities exist in a variety of local, state, and federal law enforcement, corrections, and security fields. Examples include police officer, deputy sheriff, county detention officer, state trooper, intensive probation/parole surveillance officer, correctional officer, and loss prevention specialist.

CRIMINAL JUSTICE TECHNOLOGY — A55180

General Education Courses

ENG 111	Expository Writing.....	3
ENG 112	Argument-Based Research.....	3
MAT 115	Mathematical Models.....	3
	Humanities/Fine Arts Elective.....	3
	Social/Behavioral Science Elective.....	3

Major Courses

CIS 111	Basic PC Literacy.....	2
CJC 111	Introduction to Criminal Justice.....	3
CJC 112	Criminology.....	3
CJC 113	Juvenile Justice.....	3
CJC 121	Law Enforcement Operations.....	3
CJC 131	Criminal Law.....	3
CJC 132	Court Procedure and Evidence.....	3
CJC 212	Ethics and Community Relations.....	3
CJC 213	Substance Abuse.....	3
CJC 221	Investigative Principles.....	4
CJC 222	Criminalistics.....	3
CJC 231	Constitutional Law.....	3
CJC 232	Civil Liability.....	3
CJC 293	Selected Topics in Criminal Justice Technology.....	3

Major Electives

Select 11 hours from the following courses

CJC 114	Investigative Photography.....	2
CJC 120	Interviews/Investigations.....	2
CJC 122	Community Policing.....	3
CJC 141	Corrections.....	3
CJC 145	Crime Scene CAD.....	3
CJC 215	Organization and Administration.....	3
CJC 223	Organized Crime.....	3
CJC 251	Forensic Chemistry I.....	4

Graduation Requirements..... 68 Credit Hours

CULINARY TECHNOLOGY

The Culinary Technology curriculum provides specific training required to prepare students to assume positions as trained culinary professionals in a variety of food service settings including full service restaurants, hotels, resorts, clubs, catering operations, contract food service, and health care facilities.

Course offerings emphasize practical application, a strong theoretical knowledge base, and professionalism and provide the critical competencies to successfully meet industry demands. Courses also include sanitation, food/beverage service and control, baking, garde manger, American/international cuisines, food production, and hospitality supervision.

Graduates should qualify for entry-level positions such as line cook, station chef, and assistant pastry chef. American Culinary Federation certification is available to graduates. With experience, graduates may advance to positions such as sous-chef, executive chef, or food service manager.

CULINARY TECHNOLOGY — A55200

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 115	Mathematical Models	3
	Humanities/Fine Arts Elective	3
	Social/Behavioral Science Elective	3

Major Courses

CIS 111	Basic PC Literacy	2
COE 112	Co-op Work Experience I	2
COE 122	Co-op Work Experience II	2
CUL 110	Sanitation and Safety	2
CUL 112	Nutrition for Foodservice	3
CUL 120	Purchasing	2
CUL 120A	Purchasing Lab	1
CUL 125	Hospitality Information Systems	2
CUL 135	Food and Beverage Service	2
CUL 135A	Food and Beverage Service Lab	1
CUL 140	Basic Culinary Skills	5
CUL 160	Baking I	3
CUL 170	Garde-Manger I	3
CUL 180	International and American Regional Cuisine	5
CUL 240	Advanced Culinary Skills	5
CUL 250	Classical Cuisine	5
CUL 260	Baking II	3
CUL 270	Garde-Manger II	3
HRM 145	Hospitality Supervision	3
SPA 120	Spanish for the Workplace	3

Major Electives

Select one of the following courses

CUL 214	Wine Appreciation	2
CUL 280	Pastry and Confections	3
CUL 285	Competition Fundamentals	3

Graduation Requirements 74 Credit Hours

DATABASE MANAGEMENT

The Database Management curriculum prepares graduates for employment with organizations that use database management system software to process, manage, and communicate information. Additionally, the curriculum provides the student with a foundation to begin professional certification with Microsoft or ORACLE database programs.

Course work includes terminology and design, database administration, backup and recovery, performance and tuning, database programming and tools, and related topics. Studies will provide an opportunity for students to implement, support, and manage industry standard database systems.

Graduates should qualify for a wide variety of database and computer related entry-level positions that provide opportunities for advancement with increasing experience and ongoing training.

DATABASE MANAGEMENT — A25150

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
HUM 115	Critical Thinking	3
MAT 145	Analytical Math	3
MAT 145A	Analytical Math Lab	1
PSY 150	General Psychology	3

Major Courses

CIS 110	Introduction to Computers	3
CIS 115	Introduction to Programming and Logic	3
CSC 139	Visual BASIC Programming	3
CSC 239	Advanced Visual BASIC Programming	3
CTS 115	Information Systems Business Concept	3
CTS 285	Systems Analysis and Design	3
DBA 110	Database Concepts	3
DBA 115	Database Applications	3
DBA 120	Database Programming I	3
DBA 210	Database Administration	3
DBA 230	Database in Corporate Environments	3
DBA 240	Database Analysis/Design	3
DBA 289	Database Project	3
NET 110	Networking Concepts	3
NOS 110	Operating System Concepts	3
SEC 110	Security Concepts	3

Major Electives List 1

Select 3 hours from the following courses

COE 113	Co-op Work Experience I	3
CSC 151	JAVA Programming	3
CSC 153	C# Programming	3
DBA 220	Oracle Database Programming II	3
DBA 221	SQL Server Database Programming II	3
DBA 222	DB2 Database Programming II	3
DBA 223	MySQL Database Programming II	3
DBA 224	SAS Database Programming II	3
WEB 115	Web Markup and Scripting	3
WEB 182	PHP Programming	3
WEB 186	XML Technology	3

Major Electives List 2

Select 3 hours from the following courses

DBA 192	Selected Topics in Database Management: Oracle Internet Application	2
DBA 260	Oracle DBMS Administration	3
DBA 261	SQL Server DBMS Administration	3
DBA 262	DB2 DBMS Administration	3
DBA 263	MySQL DBMS Administration	3
DBA 264	SAS DBMS Administration	3
NOS 130	Windows Single User	3
WEB 140	Web Development Tools	3
WEB 183	Perl Programming	3

Major Electives List 3

Select 3 hours from the following courses

DBA 193	Selected Topics in Database Management: Oracle Optimization	3
DBA 270	Oracle Performance Tuning	3
DBA 271	SQL Server Performance Tuning	3
DBA 272	DB2 Performance Tuning	3
DBA 273	MySQL Performance Tuning	3
DBA 274	SAS Performance Tuning	3
DBA 285	Data Warehousing and Mining	3
DBA 291	Selected Topics in Database Management: Oracle Project	1
WEB 180	Active Server Pages	3

WEB 210	Web Design	3
WEB 250	Database Driven Websites	3

Graduation Requirements 73 Credit Hours

DENTAL HYGIENE

The Dental Hygiene curriculum provides individuals with the knowledge and skills to assess, plan, implement, and evaluate dental hygiene care for the individual and the community.

Students will learn to prepare the operatory, take patient histories, note abnormalities, plan care, teach oral hygiene, clean teeth, take x-rays, apply preventive agents, complete necessary chart entries, and perform other procedures related to dental hygiene care.

Graduates of this program may be eligible to take national and state/regional examinations for licensure which are required to practice dental hygiene. Employment opportunities include dental offices, clinics, schools, public health agencies, industry, and professional education.

DENTAL HYGIENE — A45260

General Education Courses

ENG 111	Expository Writing	3
PSY 150	General Psychology	3
SOC 210	Introduction to Sociology	3
CHM 130	General, Organic and Biochemistry	3
COM 120	Interpersonal Communication	3
	Humanities/Fine Arts Elective	3

Major Courses

BIO 163	Basic Anatomy	5
BIO 175	General Microbiology	3
DEN 110	Orofacial Anatomy	3
DEN 111	Infection/Hazard Control	2
DEN 112	Dental Radiography	3
DEN 120	Dental Hygiene Preclinic Lecture	2
DEN 121	Dental Hygiene Preclinic Lab	2
DEN 123	Nutrition and Dental Health	2
DEN 124	Periodontology	2
DEN 125	Dental Office Emergencies	1
DEN 130	Dental Hygiene Theory I	2
DEN 131	Dental Hygiene Clinic I	3
DEN 140	Dental Hygiene Theory II	1
DEN 141	Dental Hygiene Clinic II	2
DEN 220	Dental Hygiene Theory III	2
DEN 221	Dental Hygiene Clinic III	4
DEN 222	General and Oral Pathology	2
DEN 223	Dental Pharmacology	2
DEN 224	Materials and Procedures	2
DEN 230	Dental Hygiene Theory IV	1
DEN 231	Dental Hygiene Clinic IV	4
DEN 232	Community Dental Health	3
DEN 233	Professional Development	2

Graduation Requirements 73 Credit Hours

EARLY CHILDHOOD ASSOCIATE

The Early Childhood Associate curriculum prepares individuals to work with children from infancy through middle childhood in diverse learning environments. Students will combine learned theories with practice in actual settings with young children under the supervision of qualified teachers.

Course work includes child growth and development; physical/nutritional needs of children; care and guidance of children; and communication skills with parents and children. Students will foster the cognitive/language, physical/motor, social/emotional, and creative development of young children.

Graduates are prepared to plan and implement developmentally appropriate programs in early childhood settings. Employment opportunities include child development and child care programs, preschools, public and private schools, recreational centers, Head Start Programs, and school-age programs.

EARLY CHILDHOOD ASSOCIATE — A5220

General Education Courses

ENG 111	Expository Writing	3
ENG 112	Argument-Based Research	3
MAT 115	Mathematical Models	3
PSY 150	General Psychology	3
	Humanities/Fine Arts Elective	3

Major Courses

CIS 111	Basic PC Literacy	2
COE 111	Co-op Work Experience I	1
COE 121	Co-op Work Experience II	1
COE 131	Co-op Work Experience III	1
COE 211	Co-op Work Experience IV	1
EDU 119	Early Childhood Education	4
EDU 131	Child, Family, and Community	3
EDU 144	Child Development I	3
EDU 145	Child Development II	3
EDU 146	Child Guidance	3
EDU 151	Creative Activities	3
EDU 152	Music, Movement, and Language	3
EDU 153	Health, Safety, and Nutrition	3
EDU 157	Active Play	3
EDU 185	Cognitive and Language Activities	3
EDU 221	Children with Special Needs	3
EDU 251	Exploration Activities	3
EDU 261	Early Childhood Administration I	2
EDU 262	Early Childhood Administration II	3
EDU 271	Educational Technology	3
EDU 280	Literacy Experiences	3
EDU 282	Early Childhood Literature	3

Major Electives

Select one of the following courses

EDU 234	Infants, Toddlers, and Twos	3
EDU 263	Developing School Age Programs	2

Graduation Requirements 75 Credit Hours

ELECTRICAL/ELECTRONICS TECHNOLOGY

The Electrical/Electronics Technology curriculum is designed to provide training for persons interested in the installation and maintenance of electrical/electronic systems found in residential, commercial, and industrial facilities.

Training, most of which is hands-on, will include such topics as AC/DC theory, basic wiring practices, digital electronics, programmable logic controllers, industrial motor controls, the National Electrical Code, and other subjects as local needs require.

Graduates should qualify for a variety of jobs in the electrical/electronics field as an on-the-job trainee or apprentice assisting in the layout, installation, and maintenance of electrical/electronic systems.

ELECTRICAL/ELECTRONICS TECHNOLOGY — A35220

General Education Courses

COM 120	Interpersonal Communications.....	3
ENG 110	Freshman Composition.....	3
HUM 121	The Nature of America.....	3
PHY 121	Applied Physics I.....	4
PSY 118	Interpersonal Psychology.....	3

Major Courses

CIS 111	Basic PC Literacy.....	2
ELC 112	DC/AC Electricity.....	5
ELC 113	Basic Wiring I.....	4
ELC 114	Basic Wiring II.....	4
ELC 115	Industrial Wiring.....	4
ELC 117	Motors and Controls.....	4
ELC 118	National Electrical Code.....	2
ELC 119	NEC Calculations.....	2
ELC 121	Electrical Estimating.....	2
ELC 126	Electrical Computations.....	3
ELC 128	Introduction to PLC.....	3
ELC 134	Transformer Applications.....	2
ELC 229	Applications Project.....	2
ELN 133	Digital Electronics.....	4
ELN 229	Industrial Electronics.....	4
HYD 110	Hydraulics/Pneumatics I.....	3

Graduation Requirements 66 Credit Hours

ELECTRONICS ENGINEERING TECHNOLOGY

The Electronics Engineering Technology curriculum prepares individuals to become technicians who design, build, install, test, troubleshoot, repair, and modify developmental and production electronic components, equipment, and systems such as industrial/computer controls, manufacturing systems, communication systems, and power electronic systems.

A broad-based core of courses, including basic electricity, solid-state fundamentals, digital concepts, and microprocessors, ensures the student will develop the skills necessary to perform entry-level tasks. Emphasis is placed on developing the student's ability to analyze and troubleshoot electronic systems.

Graduates should qualify for employment as engineering assistants or electronic technicians with job titles such as electronics engineering technician, field service technician, maintenance technician, electronic tester, electronic systems integrator, bench technician, and production control technician.

ELECTRONICS ENGINEERING TECHNOLOGY — A40200

General Education Courses

ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
MAT 121	Algebra and Trigonometry.....	3
HUM 110	Technology and Society.....	3
	Social/Behavioral Science Elective.....	3

Major Courses

ATR 213	Programmable Controllers.....	4
CSC 133	C Programming.....	3
EGR 131	Introduction to Electronics Technology.....	2

EGR 285	Design Project.....	2
ELC 131	DC/AC Circuit Analysis.....	5
ELN 131	Electronic Devices.....	4
ELN 132	Linear IC Applications.....	4
ELN 133	Digital Electronics.....	4
ELN 150	CAD for Electronics.....	2
ELN 154	Introduction to Data Communications.....	3
ELN 232	Introduction to Microprocessors.....	4
ELN 233	Microprocessor Systems.....	4
ELN 234	Communication Systems.....	4
ELN 275	Troubleshooting.....	2
MAT 122	Algebra/Trigonometry II.....	3
PHY 151	College Physics I.....	4

Major Electives

Select 3 hours from the following courses

ATR 214	Advanced PLCs.....	4
ELN 193	Selected Topics in Electronics Engineering Technology 3	3
ELN 235	Data Communication System.....	4
ELN 236	Fiber Optics and Lasers.....	4
MAT 223	Applied Calculus.....	3

Computer Electives

Select 2 hours from the following courses

CIS 110	Introduction to Computers.....	3
CIS 111	Basic PC Literacy.....	2
NOS 110	Operating System Concepts.....	3

Co-op Work Experiences

Select 2 hours from the following courses

COE 111	Co-op Work Experience I.....	1
COE 112	Co-op Work Experience I.....	2
COE 121	Co-op Work Experience II.....	1
COE 122	Co-op Work Experience II.....	2

Graduation Requirements..... 76 Credit Hours

EMERGENCY MEDICAL SCIENCE

The Emergency Medical Science curriculum is designed to prepare graduates to enter the workforce as paramedics. Additionally, the program can provide an Associate Degree for individuals desiring an opportunity for career enhancement.

The course of study provides the student an opportunity to acquire basic and advanced life support knowledge and skills by utilizing classroom instruction, practical laboratory sessions, hospital clinical experience, and field internships with emergency medical service agencies.

Students progressing through the program may be eligible to apply for both state and national certification exams. Employment opportunities include ambulance services, fire and rescue agencies, air medical services, specialty areas of hospitals, industry, educational institutions, and government agencies.

EMERGENCY MEDICAL SCIENCE — A45340

General Education Courses

BIO 165	Anatomy and Physiology I.....	4
BIO 166	Anatomy and Physiology II.....	4
ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
PSY 150	General Psychology.....	3
	Humanities/Fine Arts Elective.....	3

Major Courses

EMS 110	EMT-Basic.....	7
EMS 120	Intermediate Interventions.....	3
EMS 121	EMS Clinical Practicum I.....	2
EMS 125	EMS Instructor Methodology.....	2
EMS 130	Pharmacology I for EMS.....	2
EMS 131	Advanced Airway Management.....	2
EMS 140	Rescue Scene Management.....	2
EMS 150	Emergency Vehicles and EMS Communication.....	2
EMS 210	Advanced Patient Assessment.....	2
EMS 220	Cardiology.....	4
EMS 221	EMS Clinical Practicum II.....	3
EMS 230	Pharmacology II for EMS.....	2
EMS 231	EMS Clinical Practicum III.....	3
EMS 235	EMS Management.....	2
EMS 240	Special Needs Patients.....	2
EMS 241	EMS Clinical Practicum IV.....	3
EMS 250	Advanced Medical Emergencies.....	3
EMS 260	Advanced Trauma Emergencies.....	2
EMS 270	Life Span Emergencies.....	3
EMS 285	EMS Capstone.....	2

Graduation Requirements 73 Credit Hours

ENVIRONMENTAL SCIENCE TECHNOLOGY

The Environmental Science Technology curriculum is designed to prepare individuals for employment in environmental testing/consulting and related industries. Major emphasis is placed on biological and chemical evaluation of man's impact on his environment.

Course work includes general education, computer applications, biology, chemistry, industrial safety, and an extensive array of detailed environmentally specific classes.

Graduates should qualify for numerous positions within the industry. Employment opportunities include, but are not limited to, the following: Chemical Analysis, Biological Analysis, Water/Wastewater Treatment, EPA Compliance Inspection, Hazardous Material Handling, Waste Abatement/Removal, and Contaminated Site Assessment/Remediation.

ENVIRONMENTAL SCIENCE TECHNOLOGY — A20140

General Education Courses

ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
MAT 121	Algebra and Trigonometry.....	3
	Humanities/Fine Arts Elective.....	3
PSY 118	Interpersonal Psychology.....	3
or		
SOC 210	Introduction to Sociology.....	3

Major Courses

ACA 111	College Student Success.....	1
BIO 110	Principles of Biology.....	4
CHM 131	Introduction to Chemistry.....	3
CHM 131A	Introduction to Chemistry Lab.....	1
CHM 132	Organic and Biochemistry.....	4
CIS 111	Basic PC Literacy.....	2
COE 112	Co-op Work Experience I.....	2
and		
COE 124	Co-op Work Experience II.....	4
or		
COE 114	Co-op Work Experience I.....	4
and		

COE 122	Co-op Work Experience II.....	2
ENV 110	Environmental Science.....	3
ENV 120	Earth Science.....	4
ENV 193	Selected Topics in Environmental Science Technology.....	3
ENV 210	Management of Waste.....	4
ENV 212	Instrumentation.....	4
ENV 214	Water Quality.....	4
ENV 218	Environmental Health.....	3
ENV 220	Applied Ecology.....	4
ENV 222	Air Quality.....	4
ENV 226	Environmental Law.....	3
ENV 228	Environmental Issues.....	1
ISC 112	Industrial Safety.....	2

Graduation Requirements..... 75 Credit Hours

GENERAL OCCUPATIONAL TECHNOLOGY

Day and Evening

The General Occupational Technology curriculum provides individuals with an opportunity to upgrade their skills and to earn an associate degree by taking courses suited for their occupational interests and/or needs.

The curriculum content will be individualized for students according to their occupational interests and needs. A program of study for each student will be selected from associate degree-level courses offered by the College.

Graduates will become more effective workers, better qualified for advancements within their field of employment, and become qualified for a wide range of entry-level employment opportunities.

Students must consult with their advisors prior to registration.

GENERAL OCCUPATIONAL TECHNOLOGY — A55280

General Education Requirements (15 To 18 Credits)

ENG 111	Expository Writing.....	3
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One of the following ENG courses:

ENG 112	Argument-Based Research.....	3
ENG 114	Professional Research and Reporting.....	3

One of the following BIO courses:

BIO 106	Introduction to Anatomy/Physiology/Microbiology.....	3
BIO 160	Introductory Life Science.....	3
BIO 163	Basic Anatomy and Physiology.....	5
BIO 165	Anatomy and Physiology I.....	4

One of the following PSY courses:

PSY 110	Life Span Development.....	3
PSY 118	Interpersonal Psychology.....	3
PSY 150	General Psychology.....	3

One of the following Humanities/Fine Arts courses:

HUM 110	Technology and Society.....	3
HUM 115	Critical Thinking.....	3
HUM 160	Introduction to Film.....	3
HUM 230	Leadership Development.....	3
SPA 111	Elementary Spanish I.....	3
and		
SPA 181	Spanish Lab I.....	1

Other Course Requirements (46 To 49 Credits)

Select from the following list. Do not select courses taken to satisfy the General Education Requirements above.

BIO 106	Introduction to Anatomy/Physiology/Microbiology.....	3
BIO 155	Nutrition	3
BIO 160	Introductory Life Science.....	3
BIO 163	Basic Anatomy and Physiology	5
BIO 165	Anatomy and Physiology I.....	4
BIO 166	Anatomy and Physiology II.....	4
BIO 175	General Microbiology	3
BIO 271	Pathophysiology	3
CIS 111	Basic PC Literacy	2
ENG 102	Applied Communications II.....	3
ENG 111A	Expository Writing Lab	1
ENG 112	Argument-Based Research	3
ENG 114	Professional Research and Reporting.....	3
HUM 110	Technology and Society	3
HUM 115	Critical Thinking.....	3
HUM 160	Introduction to Film.....	3
HUM 230	Leadership Development	3
MAT 110	Mathematical Measurement.....	3
MAT 115	Mathematical Models	3
MAT 161	College Algebra.....	3
MAT 161A	College Algebra Lab.....	1
PSY 110	Life Span Development.....	3
PSY 118	Interpersonal Psychology.....	3
PSY 150	General Psychology	3
SPA 111	Elementary Spanish I.....	3
and		
SPA 181	Spanish Lab I	1
Graduation Requirements		64 Credit Hours

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY

The Heavy Equipment and Transport Technology curriculum is designed to provide individuals with the knowledge and skills needed to troubleshoot and repair medium- and heavy-duty vehicles.

The core course work includes the theory of operations, troubleshooting techniques, and repair procedures for engines, electrical, and hydraulic systems. Other courses cover transmissions, brakes, and steering/suspension. Additional related courses will be required.

Graduates of the curriculum should qualify for entry-level employment opportunities at businesses that repair medium- and heavy-duty vehicles. Entry and advancement levels depend on the amount of training completed, knowledge and ability levels, work performance, and ethics.

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY — A60240

General Education Courses

COM 120	Interpersonal Communication.....	3
ENG 110	Freshman Composition.....	3
HUM 121	The Nature of America.....	3
PHY 121	Applied Physics I.....	4
PSY 118	Interpersonal Psychology	3

Major Courses

COE 112	Co-op Work Experience I.....	2
ELC 127	Software for Technicians	2

HET 110	Diesel Engines.....	6
HET 112	Diesel Electrical Systems.....	5
HET 114	Power Trains.....	5
HET 116	Air Conditioning/Diesel Equipment	2
HET 120	Introduction to Mobile Equipment	2
HET 134	Mechanical Fuel Injection.....	3
HET 231	Medium/Heavy Duty Brake System.....	2
HET 232	Medium/Heavy Duty Brake System Lab.....	1
HET 233	Suspension and Steering.....	4
HYD 134	Hydraulic/Hydrostatic Construction.....	4
MEC 111	Machine Processes I.....	3
PME 211	Advanced Equipment Repair	4
PME 221	Construction Equipment Servicing.....	2
WLD 112	Basic Welding Processes.....	2

Major Electives

Select 5 hours from the following courses

ELN 112	Diesel Electronics System.....	4
ELN 113	Electronic Fuel Injection	2
HET 115	Electronic Engines.....	3
HET 128	Medium/Heavy Duty Tune-up	2
HET 192	Selected Topics in Heavy Equipment and Transport Technology	2

Hydraulics Electives

Select one of the following courses

HYD 111	Mobile Hydraulic Systems.....	3
HYD 112	Hydraulics/Medium/Heavy Duty.....	2

Graduation Requirements.....72-73 Credit Hours

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY/ CONSTRUCTION EQUIPMENT SYSTEMS

Construction Equipment Systems is a concentration under the curriculum title of Heavy Equipment and Transport Technology. This curriculum is designed to provide individuals with the knowledge and skills needed to troubleshoot and repair construction equipment systems. Construction equipment includes dozers, scrapers, loaders, and forklifts.

The core course work includes the theory of operations, troubleshooting techniques, and repair procedures for engines and electrical and hydraulics systems. The concentration courses will include transmissions, brakes, undercarriage, and equipment repair. Other related courses will be required.

Graduates of the curriculum should qualify for entry-level employment opportunities at businesses that repair construction equipment. Entry and advancement levels depend on the amount of training completed, knowledge and ability levels, work performance, and ethics.

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY/CONSTRUCTION EQUIPMENT SYSTEMS — A6024B

General Education Courses

COM 120	Interpersonal Communication.....	3
ENG 110	Freshman Composition	3
HUM 121	The Nature of America	3
PHY 121	Applied Physics I.....	4
PSY 118	Interpersonal Psychology.....	3

Major Courses

ELC 127	Software for Technicians	2
HET 110	Diesel Engines	6
HET 112	Diesel Electrical Systems	5
HET 114	Power Trains	5
HET 116	Air Conditioning/Diesel Equipment	2
HET 134	Mechanical Fuel Injection	3
HYD 134	Hydraulic/Hydrostatic Construction	4
MEC 111	Machine Processes I	3
PME 113	Construction Equipment Repair	2
PME 117	Equipment Braking Systems	3
PME 118	Undercarriage Components	2
PME 211	Advanced Equipment Repair	4
PME 221	Construction Equipment Servicing	2
WLD 112	Basic Welding Processes	2

Major Electives

Select 6 hours from the following courses

ELN 112	Diesel Electronics System	4
ELN 113	Electronic Fuel Injection	2
HET 115	Electronic Engines	3
HET 128	Medium/Heavy Duty Tune-up	2
HET 192	Selected Topics in Heavy Equipment and Transport Technology	2

Hydraulics Electives

Select one of the following courses

HYD 111	Mobile Hydraulic Systems	3
HYD 112	Hydraulics/Medium/Heavy Duty	2

Co-op Electives

Select 2 hours from the following courses

COE 111	Co-op Work Experience I	1
COE 112	Co-op Work Experience I	2
COE 121	Co-op Work Experience II	1

Graduation Requirements 71-72 Credit Hours

HIGH PERFORMANCE COMPUTING

The High Performance Computing (HPC) curriculum is designed to prepare students for employment with organizations that require experience with HPC technology. Students will learn how to assemble, program and operate high performance cluster computers.

The curriculum includes introductory and advanced levels of HPC architecture including distributed-memory systems, parallel programming concepts, high-speed networking and Linux/Unix operating systems.

Program graduates can expect to work in an HPC environment that supports educational, industrial, or government agencies that require HPC skills.

HIGH PERFORMANCE COMPUTING — A25230

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 145	Analytical Mathematics	3
MAT 145A	Analytical Mathematics Lab	1
PSY 118	Interpersonal Psychology	3
	Humanities/Fine Arts Elective	3

Major Courses

CSC 125	Introduction to Parallel Programming	3
CSC 133	C Programming	3
CSC 225	Advanced Parallel Programming	3
CSC 229	MPI Programming	3
HPC 110	Introduction to HPC	3
HPC 130	Introduction to HPC Communication	3
HPC 140	Introduction to HPC Architecture	3
HPC 230	Advanced HPC Communication	3
HPC 240	Advanced HPC Architecture	3
HPC 245	Grid Technologies	3
HPC 285	System Analysis and Design	3
NET 145	Introduction to Linux	3
NET 155	Linux System Administration	3
NOS 110	Operating System Concepts	3
NOS 221	Linux/UNIX Administration II	3

Major Electives List 1

Select 3 hours from the following courses

COE 113	Co-op Work Experience I	3
CSC 151	JAVA Programming	3
CSC 233	Advanced C Programming	3
HPC 154	Introduction to Bioinformatics Computing	3
HPC 162	HPC Security	3
HPC 170	Introduction to HPC Data Mining	3
HPC 172	HPC Applications	3
HPC 193	Selected Topics in High Performance Computing	3
HPC 198	Seminar in High Performance Computing	3
NET 225	Routing and Switching I	3
WEB 115	Web Markup and Scripting	3
WEB 183	Perl Programming	3

Major Electives List 2

Select 3 hours from the following courses

COE 123	Co-op Work Experience II	3
CSC 245	Advanced C/C++ Programming	3
CSC 255	Open MP Programming	3
CSC 275	HPC Algorithms	3
HPC 262	Advanced HPC Security	3
HPC 293	Selected Topics in High Performance Computing: Bioinformatics Capstone	3
HPC 298	Seminar in High Performance Computing	3
NET 226	Routing and Switching II	3
NOS 222	Linux/UNIX Administration III	3
WEB 215	Advanced Markup and Scripting	3

Graduation Requirements 67 Credit Hours

HOTEL AND RESTAURANT MANAGEMENT

The Hotel and Restaurant Management curriculum prepares students to understand and apply the administrative and practical skills needed for supervisory and managerial positions in hotels, motels, resorts, inns, restaurants, institutions, and clubs.

Course work includes front office management, food preparation, guest services, sanitation, menu writing, quality management, purchasing, and other areas critical to the success of hospitality professionals.

Upon completion graduates should qualify for supervisory or entry-level management positions in food and lodging including, front office, reservations, housekeeping, purchasing, dining room, and marketing. Opportunities are also available in the support areas of food and equipment sales.

HOTEL AND RESTAURANT MANAGEMENT — A25240

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
HUM 115	Critical Thinking.....	3
	or	
HUM 230	Leadership Development.....	3
MAT 115	Mathematical Models	3
	Humanities/Fine Arts Elective.....	3
	Social/Behavioral Science	3

Major Courses

ACC 175	Hotel and Restaurant Accounting.....	4
BUS 110	Introduction to Business	3
CIS 111	Basic PC Literacy.....	2
COE 112	Co-op Work Experience I.....	2
CTS 135	Integrated Software Introduction	4
CUL 110	Sanitation and Safety.....	2
CUL 135	Food and Beverage Service.....	2
CUL 135A	Food and Beverage Service Lab.....	1
CUL 140	Basic Culinary Skills.....	5
CUL 214	Wine Appreciation.....	2
HRM 110	Introduction to Hospitality.....	2
HRM 140	Hospitality Tourism Law.....	3
HRM 145	Hospitality Supervision.....	3
HRM 220	Food and Beverage Controls.....	3
HRM 220A	Food and Beverage Control Lab.....	1
HRM 240	Hospitality Marketing.....	3
HRM 280	Hospitality Management Problems	3
SPA 120	Spanish for the Workplace.....	3

Major Electives

Select one of the following complete sets of courses

Hotel Option

HRM 115	Housekeeping	3
HRM 120	Front Office Procedures.....	3
HRM 210	Meetings and Conventions.....	3

Restaurant Option

CUL 130	Menu Design	2
HRM 193	Selected Topics in Hotel and Restaurant Management.....	3
HRM 215	Restaurant Management.....	3
HRM 225	Beverage Management	2

Graduation Requirements 73-74 Credit Hours

HUMAN SERVICES TECHNOLOGY

The Human Services Technology curriculum prepares students for entry-level positions in institutions and agencies that provide social, community, and educational services. Along with core courses, students take courses that prepare them for specialization in specific human service areas.

Students will take courses from a variety of disciplines. Emphasis in core courses is placed on development of relevant knowledge, skills, and attitudes in human services. Fieldwork experience will provide opportunities for application of knowledge and skills learned in the classroom.

Graduates should qualify for positions in mental health, child care, family services, social services, rehabilitation, correction, and educational agencies. Graduates choosing to continue their

education may select from a variety of transfer programs at senior public and private institutions.

HUMAN SERVICES TECHNOLOGY — A45380

General Education Courses

BIO 161	Introduction to Human Biology.....	3
COM 120	Interpersonal Communication.....	3
ENG 111	Expository Writing.....	3
ENG 112	Argument-Based Research.....	3
SOC 210	Introduction to Sociology.....	3
	Humanities/Fine Arts Elective.....	3

Major Courses

CIS 111	Basic PC Literacy	2
COE 111	Co-op Work Experience I.....	1
COE 115	Work Experience Seminar I.....	1
GRO 120	Gerontology	3
HSE 110	Introduction to Human Services.....	3
HSE 112	Group Process I.....	2
HSE 115	Health Care Concepts.....	4
HSE 123	Interviewing Techniques	3
HSE 125	Counseling.....	3
HSE 210	Human Services Issues	2
HSE 220	Case Management.....	3
HSE 225	Crisis Intervention.....	3
HSE 242	Family Systems	3
HSE 250	Financial Services	2
PSY 118	Interpersonal Psychology.....	3
PSY 150	General Psychology	3
PSY 281	Abnormal Psychology	3
SAB 110	Substance Abuse Overview.....	3
SWK 113	Working with Diversity.....	3

Major Electives

Select 3 hours from the following courses

COE 121	Co-op Work Experience II.....	1
COE 125	Work Experience Seminar II	1
HEA 110	Personal Health/Wellness.....	3
HSE 127	Conflict Resolution.....	3
HSE 145	Child Abuse and Neglect.....	3
HSE 150	Preventive Intervention.....	2
HSE 155	Community Resources Management	2
HSE 240	Issues in Client Services	3
HSE 255	Health Problems and Prevention.....	3
PSY 110	Life Span Development.....	3

Graduation Requirements..... 71 Credit Hours

HUMAN SERVICES TECHNOLOGY/DEVELOPMENTAL DISABILITIES

The Human Services Technology/Developmental Disabilities concentration is designed to train technicians to work with children and adults with physical, mental, and emotional disabilities. Students will specialize in the areas of developmental disabilities and mental retardation.

Students will gain an understanding of the handicapping effects of developmental disabilities in medical, psychological, social, educational, vocational, and economic terms. Fieldwork and clinical experience in community agencies providing comprehensive services to disabled persons and their families will be provided.

Graduates should qualify for employment in group homes, foster care homes, respite services, vocational rehabilitation agencies, sheltered workshops, adult developmental activities programs, early childhood intervention programs, and other programs for developmentally disabled and mentally retarded individuals and their families.

HUMAN SERVICES TECHNOLOGY/DEVELOPMENTAL DISABILITIES — A4538A

General Education Courses

BIO 161	Introduction to Human Biology	3
COM 120	Interpersonal Communication.....	3
ENG 111	Expository Writing	3
ENG 112	Argument-Based Research	3
SOC 210	Introduction to Sociology	3
	Humanities/Fine Arts Elective.....	3

Major Courses

CIS 111	Basic PC Literacy.....	2
COE 111	Co-op Work Experience I.....	1
COE 115	Work Experience Seminar I.....	1
DDT 110	Developmental Disabilities.....	3
DDT 120	Teaching the Developmentally Disabled.....	3
DDT 210	DDT Health Issues.....	3
DDT 220	Program Planning Process.....	3
HSE 110	Introduction to Human Services	3
HSE 112	Group Process I.....	2
HSE 115	Health Care Concepts	4
HSE 123	Interviewing Techniques	3
HSE 125	Counseling	3
HSE 210	Human Services Issues	2
HSE 220	Case Management.....	3
HSE 225	Crisis Intervention	3
HSE 242	Family Systems.....	3
HSE 250	Financial Services.....	2
PSY 118	Interpersonal Psychology	3
PSY 150	General Psychology.....	3
PSY 281	Abnormal Psychology.....	3
SWK 113	Working with Diversity.....	3

Graduation Requirements 74 Credit Hours

HUMAN SERVICES TECHNOLOGY/SUBSTANCE ABUSE

The Human Services Technology/Substance Abuse concentration prepares students to assist in drug and alcohol counseling, prevention-oriented educational activities, rehabilitation with recovering clients, managing community-based programs, counseling in residential facilities, and pursuit of four-year degrees.

Course work includes classroom and experiential activities oriented toward an overview of chemical dependency, psychological/sociological process, the twelve Core Functions, intervention techniques with individuals in groups, and follow-up activities with recovering clients.

Graduates should qualify for positions as substance abuse counselors, DUI counselors, halfway house workers, residential facility employees, and substance education specialists. With

educational and clinical experiences, graduates can obtain certification by the North Carolina Substance Abuse Board.

HUMAN SERVICES TECHNOLOGY/ SUBSTANCE ABUSE — A4538E

General Education Courses

BIO 161	Introduction to Human Biology	3
ENG 111	Expository Writing.....	3
ENG 112	Argument-Based Research.....	3
COM 120	Interpersonal Communication	3
SOC 210	Introduction to Sociology	3
	Humanities/Fine Arts Elective	3

Major Courses

CIS 111	Basic PC Literacy	2
COE 111	Co-op Work Experience I.....	1
COE 115	Work Experience Seminar I	1
COE 121	Co-op work Experience II.....	1
COE 125	Work Experience Seminar II	1
HSE 110	Introduction to Human Services.....	3
HSE 112	Group Process I.....	2
HSE 123	Interviewing Techniques	3
HSE 125	Counseling.....	3
HSE 210	Human Services Issues	2
HSE 225	Crisis Intervention	3
HSE 242	Family Systems	3
PSY 118	Interpersonal Psychology.....	3
PSY 150	General Psychology	3
PSY 281	Abnormal Psychology	3
SAB 110	Substance Abuse Overview.....	3
SAB 120	Intake and Assessment.....	3
SAB 125	SAB Case Management	3
SAB 135	Addictive Process.....	3
SAB 210	Substance Abuse Counseling.....	3
SAB 220	Group Techniques/Therapy	3
SAB 240	SAB Issues in Client Services.....	3
SWK 113	Working with Diversity	3

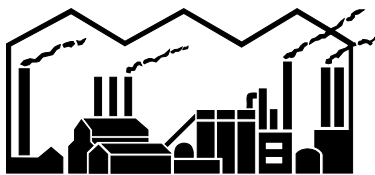
Graduation Requirements..... 76 Credit Hours

INDUSTRIAL ENGINEERING TECHNOLOGY

The Industrial Engineering Technology curriculum prepares graduates to perform as technical leaders in manufacturing and service organizations. The curriculum incorporates the study and application of methods and techniques for developing, implementing, and improving integrated systems involving people, material, equipment, and information.

The course work emphasizes analytical and problem-solving techniques for process development and improvement. The curriculum includes systems analysis, quality and productivity improvement techniques, cost analysis, facilities planning, organizational management, effective communications, and computer usage as a problem-solving tool.

Graduates of the curriculum will qualify for positions in a wide range of manufacturing and service organizations. Employment opportunities include industrial engineering technology, quality assurance, supervision, team leadership, and facilities management. Certification is available through organizations such as ASQC, SME, and APICS.



INDUSTRIAL ENGINEERING TECHNOLOGY — A40240

General Education Courses

ECO 251	Principles of Microeconomics	3
ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 121	Algebra and Trigonometry	3
	Humanities/Fine Arts Elective	3

Major Courses

DFT 111	Technical Drafting I	2
DFT 151	CAD I	3
EGR 285	Design Project	2
ISC 112	Industrial Safety	2
ISC 128	Industrial Leadership	2
ISC 132	Manufacturing Quality Control	3
ISC 136	Productivity Analysis I	3
ISC 243	Production and Operations Management I	3
ISC 255	Engineering Economy	3
MAC 114	Introduction to Metrology	2
MAT 122	Algebra/Trigonometry II	3
MAT 151	Statistics I	3
MEC 161	Manufacturing Processes I	3
MEC 161A	Manufacturing Processes I Lab	1
MEC 180	Engineering Materials	3

Major Electives

Select 13 hours from the following courses

DFT 121	Introduction to GD and T	2
DFT 152	CAD II	3
ISC 175	QA Fundamentals	1
ISC 226	Facilities Design	4
ISC 230	Simulation Production Processes	2
ISC 237	Quality Management	3
ISC 277	Quality Technology	4
ISC 278	cGMP Quality Systems	2
ISC 280	Validation Fundamentals	2
PHY 151	College Physics I	4

Co-op Work Experience Electives

Select 2 hours from the following courses

COE 111	Co-op Work Experience I	1
COE 112	Co-op Work Experience I	2
COE 121	Co-op Work Experience II	1
COE 122	Co-op Work Experience II	2

Graduation Requirements 68 Credit Hours

INDUSTRIAL PHARMACEUTICAL TECHNOLOGY

The Industrial Pharmaceutical Technology curriculum is designed to prepare individuals for employment in pharmaceutical manufacturing and related industries. Major emphasis is placed on manufacturing processes and quality assurance procedures.

Course work includes general education, computer applications, biology, chemistry, industrial safety, and an extensive array of very detailed pharmaceutically specific classes.

Graduates should qualify for numerous positions within the industry. Employment opportunities include, but are not limited to, the following: Chemical Quality Assurance, Microbiological Quality Assurance, Product Inspection, Documentation Review, Manufacturing, and Product/Process Validation.

INDUSTRIAL PHARMACEUTICAL TECHNOLOGY — A20180

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 121	Algebra and Trigonometry	3
	Humanities/Fine Arts Elective	3
PSY 118	Interpersonal Psychology	3
or		
SOC 210	Introduction to Sociology	3

Major Courses

ACA 111	College Student Success	1
BIO 110	Principles of Biology	4
CHM 131	Introduction to Chemistry	3
CHM 131A	Introduction to Chemistry Lab	1
CHM 132	Organic and Biochemistry	4
CIS 111	Basic PC Literacy	2
COE 112	Co-op Work Experience I	2
and		
COE 124	Co-op Work Experience II	4
or		
COE 114	Co-op Work Experience I	4
and		
COE 122	Co-op Work Experience II	2
ENV 212	Instrumentation	4
ISC 112	Industrial Safety	2
PTC 110	Industrial Environment	3
PTC 120	Pharmaceutical Quality Control	4
PTC 193	Selected Topics in Industrial Pharmaceutical Technology	3
PTC 210	Pharmaceutical Industrial Processes	4
PTC 212	Applied Microbiology	4
PTC 214	Parenteral Processes	4
PTC 222	Pharmaceutical Process Control	3
PTC 226	Validation	3
PTC 228	Pharmaceutical Issues	1

Graduation Requirements..... 71 Credit Hours

INDUSTRIAL SYSTEMS TECHNOLOGY

The Industrial Systems Technology curriculum is designed to prepare or upgrade individuals to safely service, maintain, repair, or install equipment. Instruction includes theory and skill training needed for inspecting, testing, troubleshooting, and diagnosing industrial systems.

Students will learn multi-craft technical skills in blueprint reading, mechanical systems maintenance, electricity, hydraulics/pneumatics, welding, machining or fabrication, and includes various diagnostic and repair procedures. Practical application in these industrial systems will be emphasized and additional advanced course work may be offered.

Upon completion of this curriculum, graduates should be able to individually, or with a team, safely install, inspect, diagnose,

repair, and maintain industrial process and support equipment. Students will also be encouraged to develop their skills as life-long learners.

INDUSTRIAL SYSTEMS TECHNOLOGY — A50240

General Education Courses

COM 120	Interpersonal Communication.....	3
ENG 110	Freshman Composition.....	3
HUM 121	The Nature of America.....	3
PHY 121	Applied Physics I.....	4
PSY 118	Interpersonal Psychology.....	3

Major Courses

AHR 112	Heating Technology.....	4
AHR 113	Comfort Cooling.....	4
BPR 130	Blueprint Reading/Construction.....	2
CIS 111	Basic PC Literacy.....	2
ELC 112	DC/AC Electricity.....	5
ELC 113	Basic Wiring I.....	4
ELC 115	Industrial Wiring.....	4
ELC 117	Motors and Controls.....	4
HYD 110	Hydraulics/Pneumatics I.....	3
HYD 121	Hydraulics/Pneumatics II.....	2
ISC 110	Workplace Safety.....	1
MEC 111	Machine Processes I.....	3
MNT 110	Introduction to Maintenance Procedures.....	2
MNT 111	Maintenance Practices.....	3
or		
COE 112	Co-op Work Experience I.....	2
MNT 150	Basic Building Maintenance.....	2
MNT 220	Rigging and Moving.....	2
MNT 230	Pumps and Piping Systems.....	2
MNT 240	Industrial Equipment Troubleshooting.....	2
PLU 111	Introduction to Basic Plumbing.....	2
PLU 211	Commercial/Industrial Plumbing.....	3
WLD 112	Basic Welding Processes.....	2

Graduation Requirements 73-74 Credit Hours

INFORMATION SYSTEMS SECURITY

Information Systems Security covers a broad expanse of technology concepts. This curriculum provides individuals with the skills required to implement effective and comprehensive information security controls.

Course work includes networking technologies, operating systems administration, information policy, intrusion detection, security administration, and industry best practices to protect data communications.

Graduates should be prepared for employment as security administrators. Additionally, they will acquire the skills that allow them to pursue security certifications.

INFORMATION SYSTEMS SECURITY — A25270

General Education Courses

ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
HUM 115	Critical Thinking.....	3

MAT 145	Analytical Mathematics.....	3
MAT 145A	Analytical Mathematics Lab.....	1
PSY 118	Interpersonal Psychology.....	3

Major Courses

CIS 110	Introduction to Computers.....	3
CIS 115	Introduction to Programming and Logic.....	3
CTS 115	Information Systems Business Concepts.....	3
DBA 110	Database Concepts.....	3
NET 125	Networking Basics.....	3
NET 126	Routing Basics.....	3
NOS 110	Operating System Concepts.....	3
NOS 120	Linux/UNIX Single User.....	3
NOS 130	Windows Single User.....	3
NOS 220	Linux/UNIX Administration I.....	3
NOS 230	Windows Administration I.....	3
SEC 110	Security Concepts.....	3
SEC 150	Secure Communications.....	3
SEC 160	Secure Administration I.....	3
SEC 210	Intrusion Detection.....	3
SEC 220	Defense-In-Depth.....	3
SEC 289	Security Capstone Project.....	3

Major Electives List 1

Select 3 hours from the following courses

COE 113	Co-op Work Experience I.....	3
NET 175	Wireless Technology.....	3
NET 225	Routing and Switching I.....	3
NOS 231	Windows Administration II.....	3
SEC 193	Selected Topics in Information Systems Security.....	3
SEC 198	Seminar in Information Systems Security.....	3

Major Electives List 2

Select 3 hours from the following courses

COE 123	Co-op Experience II.....	3
NET 226	Routing and Switching II.....	3
NOS 221	Linux/UNIX Administration II.....	3
NOS 232	Windows Administration III.....	3
SEC 240	Wireless Security.....	3
SEC 293	Selected Topics in Information Systems Security.....	3
SEC 298	Seminar in Information Systems Security.....	3

Graduation Requirements..... 73 Credit Hours

LANDSCAPE ARCHITECTURE TECHNOLOGY

The Landscape Architecture Technology curriculum prepares individuals as landscape architecture technicians in landscape design, construction, and architecture fields. The well-trained landscape technician will find excellent prospects for employment and advancement, including large-scale site design and supervision and residential landscape design.

Students receive instruction in landscape construction materials and methods, environmental planning, principles of horticulture, building codes, and computer applications. They develop drafting and computer skills through progressive hands-on courses. Students may choose from a library of courses to suit specific interest areas.

Graduates will demonstrate a working knowledge of landscape architectural practices, including site planning, storm water engineering, road and parking layouts, and grading and plant selection according to zoning/code requirements.

LANDSCAPE ARCHITECTURE TECHNOLOGY — A40260

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 121	Algebra and Trigonometry	3
	Humanities/Fine Arts Elective	3
	Social/Behavioral Science Elective	3

Major Courses

ARC 114	Architectural CAD	2
ARC 240	Site Planning	3
CIS 111	Basic PC Literacy	2
COE 113	Co-op Work Experience I	3
ENV 110	Environmental Science	3
LAR 111	Introduction to Landscape Architectural Technology	3
LAR 112	Landscape Materials and Methods	4
LAR 113	Residential Landscape Design	3
LAR 211	Landscape Construction and Design	3
LAR 223	Landscape Design Project	4
LAR 230	Principles of Horticulture I	4
LAR 231	Principles of Horticulture II	3
LAR 250	Survey of Landscape Architecture	3

Major Electives

Select 12 hours from the following courses

ARC 220	Advanced Architectural CAD	2
ARC 221	Architectural 3-D CAD	3
ARC 241	Contract Administration	2
ARC 264	Digital Architecture	2
CIV 230	Construction Estimating	3
ENV 220	Applied Ecology	4
LAR 193	Selected Topics in Landscape Architecture	3
LAR 241	Advanced Site Planning	3
LAR 242	Planning and Environment	3
SRV 110	Surveying I	4

Graduation Requirements 66 Credit Hours

MACHINING TECHNOLOGY

The Machining Technology curriculum is designed to develop skills in the theory and safe use of hand tools, power machinery, computerized equipment, and sophisticated precision inspection instruments.

Students will learn to interpret blueprints, set up manual and CNC machines, perform basic and advanced machining operations, and make decisions to ensure that work quality is maintained.

Employment opportunities for machining technicians exist in manufacturing industries, public institutions, governmental agencies, and in a wide range of specialty machining job shops.

MACHINING TECHNOLOGY — A50300

General Education Courses

COM 120	Interpersonal Communication	3
ENG 110	Freshman Composition	3
HUM 121	The Nature of America	3
PHY 121	Applied Physics I	4
PSY 118	Interpersonal Psychology	3

Major Courses

BPR 111	Blueprint Reading	2
BPR 121	Blueprint Reading: Mechanical	2
MAC 111	Machining Technology I	6
MAC 112	Machining Technology II	6
MAC 113	Machining Technology III	6
MAC 121	Introduction to CNC	2
MAC 122	CNC Turning	2
MAC 124	CNC Milling	2
MAC 126	CNC Metal Fabrication	2
MAC 151	Machining Calculations	2
MAC 152	Advanced Machining Calculations	2
MAC 222	Advanced CNC Turning	2
MAC 224	Advanced CNC Milling	2
MAC 229	CNC Programming	2
MAC 231	CNC Graphics Programming: Turning	3
MAC 232	CNC Graphics Programming: Milling	3
MAC 241	Jigs and Fixtures I	4
MEC 141	Introduction to Manufacturing Processes	3
MEC 231	Computer-Aided Manufacturing I	3
WLD 112	Basic Welding Processes	2

Graduation Requirements 74 Credit Hours

MACHINING TECHNOLOGY/ TOOL, DIE, AND MOLD MAKING

Tool, Die, and Mold Making is a concentration under the curriculum title of Machining Technology. This curriculum is designed to develop skills in the use of hand tools, computerized equipment, and precision instruments for machine tooling used for the mass production of parts.

Students will learn to interpret blueprints, set up manual and CNC machines, and perform basic and advanced machining operations. Emphasis will be placed on the production of tooling used for punching, stamping, and molding of parts.

Graduates should qualify for employment opportunities in manufacturing industries and tool, die, and mold making industries.

MACHINING TECHNOLOGY/ TOOL, DIE, AND MOLD MAKING — A5030A

General Education Courses

COM 120	Interpersonal Communication	3
ENG 110	Freshman Composition	3
HUM 121	The Nature of America	3
PHY 121	Applied Physics I	4
PSY 118	Interpersonal Psychology	3

Major Courses

BPR 111	Blueprint Reading	2
BPR 121	Blueprint Reading: Mechanical	2
MAC 111	Machining Technology I	6
MAC 112	Machining Technology II	6
MAC 113	Machining Technology III	6
MAC 121	Introduction to CNC	2
MAC 122	CNC Turning	2
MAC 124	CNC Milling	2
MAC 151	Machining Calculations	2
MAC 152	Advanced Machining Calculations	2
MAC 153	Compound Angles	2
MAC 232	CNC Graphics Programming: Milling	3
MAC 241	Jigs and Fixtures I	4

MAC 243	Die Making I	4
MAC 244	Die Making II	4
MAC 245	Mold Construction I	4
MAC 246	Mold Construction II	4
MEC 141	Introduction to Manufacturing Processes	3

Graduation Requirements 76 Credit Hours

MANUFACTURING TECHNOLOGY/PLASTICS †

Plastics is a concentration under the curriculum title of Manufacturing Technology. This curriculum provides training in all aspects of the polymer processing industry, one of today's fastest growing manufacturing technologies. It will prepare individuals for employment by utilizing the latest technologies in both plastics materials and plastics processing.

Course work includes rigorous study of the polymer processing industry, including materials technology, injection molding, extrusion, thermoforming, blow molding, and other related areas. Students will also gain knowledge in machine operation, maintenance, setup, design and research, quality assurance, and safety.

Graduates should qualify for employment in the design and/or production of plastic-related items including such job titles as molding technician, estimator, QC technician, setup technician, or supervisor.

MANUFACTURING TECHNOLOGY/PLASTICS — A5032A †

General Education Courses

CHM 131	Introduction to Chemistry	3
CHM 131A	Introduction to Chemistry Lab	1
ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
MAT 121	Algebra/Trigonometry	3
	Humanities/Fine Arts Elective	3
	Social/Behavioral Science Elective	3

Major Courses

ATR 112	Introduction to Automation	3
CIS 111	Basic PC Literacy	2
DFT 111	Technical Drafting I	2
or		
DFT 170	Engineering Graphics	3
HYD 110	Hydraulics/Pneumatics I	3
MEC 145	Manufacturing Materials I	3
or		
MEC 180	Engineering Materials	3
MEC 161	Manufacturing Processes I	3
MEC 161A	Manufacturing Processes I Lab	1
PLA 110	Introduction to Plastics	2
PLA 115	Polymer Processing	3
PLA 120	Injection Molding	3
PLA 210	Mold Maintenance/Design	3
PLA 215	Polymeric Materials	3
PLA 220	Moldflow	3
PLA 225	Extrusion	3
PLA 230	Advanced Plastics Manufacturing	4

Safety Electives

Select one of the following courses

ISC 112	Industrial Safety	2
ISC 121	Environmental Health and Safety	3

Quality Control Electives

Select one of the following courses

ISC 132	Manufacturing Quality Control	3
ISC 221	Statistical Quality Control	3

Industrial/Machining Electives

Select one of the following courses

ISC 128	Industrial Leadership	2
ISC 133	Manufacturing Management Practices	2
MAC 114	Introduction to Metrology	2

Graduation Requirements.....68-69 Credit Hours

MECHANICAL DRAFTING TECHNOLOGY

The Mechanical Drafting Technology curriculum prepares technicians to produce drawings of mechanical parts, components of mechanical systems, and mechanisms. CAD and the importance of technically correct drawings and designs based on current standards are emphasized.

Course work includes mechanical drafting, CAD, and proper drawing documentation. Concepts such as machine shop processes, basic materials, and physical sciences as they relate to the design process are also included. The use of proper dimensioning and tolerance techniques is stressed.

Graduates should qualify for employment in mechanical areas such as manufacturing, fabrication, research and development, and service industries.

MECHANICAL DRAFTING TECHNOLOGY — A50340

General Education Courses

COM 120	Interpersonal Communications	3
ENG 110	Freshman Composition	3
HUM 121	The Nature of America	3
PHY 121	Applied Physics I	4
PSY 118	Interpersonal Psychology	3

Major Courses

DDF 211	Design Drafting I	4
DDF 221	Design Drafting Project	2
DFT 111	Technical Drafting I	2
DFT 111A	Technical Drafting I Lab	1
DFT 112	Technical Drafting II	2
DFT 112A	Technical Drafting II Lab	1
DFT 115	Architectural Drafting	2
DFT 121	Introduction to GD and T	2
DFT 151	CAD I	3
DFT 152	CAD II	3
DFT 153	CAD III	3
DFT 161	Pattern Design and Layout	2
DFT 214	Descriptive Geometry	2
DFT 221	Electrical Drafting	4
HYD 110	Hydraulics/Pneumatics I	3
ISC 110	Workplace Safety	1
ISC 112	Industrial Safety	2
MEC 110	Introduction to CAD/CAM	2
MEC 111	Machine Processes I	3

MEC 141	Introduction to Manufacturing Processes.....	3
Major Electives		
<i>Select 2 hours from the following courses</i>		
COE 111	Co-op Work Experience I.....	1
COE 112	Co-op Work Experience I.....	2
COE 121	Co-op Work Experience II.....	1
DFT 231	Jig and Fixture Design.....	2

Graduation Requirements 65 Credit Hours

MECHANICAL ENGINEERING TECHNOLOGY

The Mechanical Engineering Technology curriculum prepares graduates for employment as mechanical technicians. Typical assignments would include assisting in the design, development, testing, and repair of mechanical equipment. Emphasis is placed on the integration of theory and mechanical principles.

Course work includes applied mechanics, manufacturing methods and processes, computer usage, computer-aided drafting, mathematics, physics, and oral and written communications. The courses will stress critical thinking, planning, and problem solving.

Graduates of the curriculum will find employment opportunities in the diversified branches of the mechanical field. Mechanical engineering technicians are employed in many types of manufacturing, fabrication, research and development, and service industries.

MECHANICAL ENGINEERING TECHNOLOGY — A40320

General Education Courses

ECO 251	Principles of Microeconomics.....	3
ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
MAT 121	Algebra and Trigonometry.....	3
	Humanities/Fine Arts Elective.....	3

Major Courses

DFT 111	Technical Drafting I.....	2
DFT 151	CAD I.....	3
DFT 152	CAD II.....	3
EGR 285	Design Project.....	2
ELC 111	Introduction to Electricity.....	3
ISC 128	Industrial Leadership.....	2
ISC 132	Manufacturing Quality Control.....	3
ISC 255	Engineering Economy.....	3
MAT 122	Algebra/Trigonometry II.....	3
PHY 151	College Physics I.....	4

Co-op Work Experience Electives

Select 2 hours from the following courses

COE 111	Co-op Work Experience I.....	1
COE 112	Co-op Work Experience I.....	2
COE 121	Co-op Work Experience II.....	1

Material/Processing Electives

Select 5 hours from the following courses

MEC 161	Manufacturing Processes I.....	3
MEC 180	Engineering Materials.....	3
PLA 110	Introduction to Plastics.....	2

Statics/Strength of Materials Electives

Select 3 hours from the following courses

CIV 110	Statics/Strength of Materials.....	3
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MEC 210	Applied Mechanics.....	3
MEC 250	Statics and Strength of Materials.....	5
MEC 251	Statics.....	3

Major Electives

Select 15 hours from the following courses

DFT 111A	Technical Drafting I Lab.....	1
DFT 121	Introduction to GD and T.....	2
DFT 153	CAD III.....	3
DFT 154	Introduction to Solid Modeling.....	3
DFT 170	Engineering Graphics.....	3
MAT 223	Applied Calculus.....	3
MEC 130	Mechanisms.....	3
MEC 252	Strength of Materials.....	3
MEC 265	Fluid Mechanics.....	3
MEC 267	Thermal Systems.....	3

Graduation Requirements..... 68 Credit Hours

MEDICAL ASSISTING

The Medical Assisting curriculum prepares multi-skilled health care professionals qualified to perform administrative, clinical, and laboratory procedures.

Course work includes instruction in scheduling appointments, coding and processing insurance accounts, billing, collections, medical transcription, computer operations; assisting with examinations/treatments, performing routine laboratory procedures, electrocardiography, supervised medication administration; and ethical/legal issues associated with patient care.

MEDICAL ASSISTING — A45400

General Education Courses

ENG 111	Expository Writing.....	3
ENG 112	Argument-Based Research.....	3
or		
COM 120	Interpersonal Communication.....	3
MAT 110	Mathematical Measurement.....	3
	Humanities/Fine Arts Elective.....	3

Social/Behavioral Science Electives

Select one of the following courses

PSY 110	Life Span Development.....	3
PSY 150	General Psychology.....	3
SOC 210	Introduction to Sociology.....	3

Major Courses

BIO 155	Nutrition.....	3
BIO 163	Basic Anatomy and Physiology.....	5
MED 110	Orientation to Medical Assisting.....	1
MED 113	Orientation to Clinical Setting II.....	2
MED 114	Professional Interaction in Health Care.....	2
MED 118	Medical Law and Ethics.....	2
MED 121	Medical Terminology I.....	3
MED 122	Medical Terminology II.....	3
MED 130	Administrative Office Procedures I.....	2
MED 131	Administrative Office Procedures II.....	2
MED 134	Medical Transcription.....	3
MED 140	Examining Room Procedures I.....	5
MED 150	Laboratory Procedures I.....	5
MED 232	Medical Insurance Coding.....	2
MED 260	MED Clinical Externship.....	5
MED 262	Clinical Perspectives.....	1
MED 264	Medical Assisting Overview.....	2
MED 270	Symptomatology.....	3
MED 272	Drug Therapy.....	3
CIS 111	Basic PC Literacy.....	2

Graduation Requirements 73 Credit Hours

MEDICAL LABORATORY TECHNOLOGY

The Medical Laboratory Technology curriculum prepares individuals to perform clinical laboratory procedures in chemistry, hematology, microbiology, and immunohematology that may be used in the maintenance of health and diagnosis/treatment of disease.

Course work emphasizes mathematical and scientific concepts related to specimen collection, laboratory testing and procedures, quality assurance, and reporting/recording and interpreting findings involving tissues, blood, and body fluids.

Graduates may be eligible to take examinations given by the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists or the National Certifying Agency. Employment opportunities include laboratories in hospitals, medical offices, industry, and research facilities.

MEDICAL LABORATORY TECHNOLOGY — A45420

General Education Courses

ENG 111	Expository Writing	3
ENG 112	Argument-Based Research	3
MAT 115	Mathematical Models	3
PSY 150	General Psychology	3
	Humanities/Fine Arts Elective	3

Major Courses

BIO 163	Basic Anatomy and Physiology	5
CIS 111	Basic PC Literacy	2
MLT 110	Introduction to MLT	3
MLT 111	Urinalysis and Body Fluids	2
MLT 115	Laboratory Calculations	2
MLT 118	Medical Lab Chemistry	3
MLT 120	Hematology/Hemostasis I	4
MLT 125	Immunohematology I	5
MLT 130	Clinical Chemistry I	4
MLT 140	Introduction to Microbiology	3
MLT 217	Professional Issues	1
MLT 220	Hematology/Hemostasis II	3
MLT 230	Clinical Chemistry II	3
MLT 240	Special Clinical Microbiology	3
MLT 254	MLT Practicum I	4
MLT 266	MLT Practicum II	6
MLT 276	MLT Practicum III	6
MLT 280	Special Practice Lab	1

Graduation Requirements 75 Credit Hours

MEDICAL OFFICE ADMINISTRATION

This curriculum prepares individuals for entry-level positions in medical and allied health facilities. Jobs include transcription, secretary, hospital unit secretary, records clerk, insurance form preparer, patient accounting clerk, and clinical technician.

Course work includes processing, compiling, recording, and maintaining medical records; utilizing office equipment and software; medical law and ethics; billing and coding; and transcribing medical documents.

Employment opportunities include the offices of allied health facilities, HMOs, insurance claims processors, laboratories, and manufacturers and suppliers of medical and hospital equipment.

MEDICAL OFFICE ADMINISTRATION — A25310

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
	or	
ENG 138	English Grammar	3
MAT 115	Mathematical Models	3
PSY 118	Interpersonal Psychology	3
	Humanities/Fine Arts Elective	3

Major Courses

BUS 260	Business Communications	3
CIS 111	Basic PC Literacy	2
CIS 120	Spreadsheet I	3
CIS 169	Business Presentations	2
OST 132	Keyboard Skill Building	2
OST 134	Text Entry and Formatting	3
OST 135	Advanced Text Entry and Formatting	4
OST 136	Word Processing	2
OST 137	Office Software Applications	2
OST 141	Medical Terms I - Medical Office	3
OST 142	Medical Terms II - Medical Office	3
OST 148	Medical Coding, Billing, and Insurance	3
OST 149	Medical Legal Issues	3
OST 164	Text Editing Applications	3
OST 181	Introduction to Office Systems	3
OST 184	Records Management	2
OST 188	Issues in Office Technology	2
OST 236	Advanced Word/Information Processing	3
OST 241	Medical Office Transcription I	2
OST 243	Medical Office Simulation	3
OST 286	Professional Development	3

Office Systems Technology Elective

Select 2 hours from the following courses

OST 197	Seminar in Patient Management Systems	2
OST 242	Medical Office Transcription II	2
OST 247	CPT Coding in the Medical Office	2
OST 248	Diagnostic Coding	2
OST 284	Emerging Technologies	2

Co-op Work Experience

Select 2 hours from the following courses

COE 111	Co-op Work Experience	1
COE 112	Co-op Work Experience I	2
COE 121	Co-op Work Experience I	1

Graduation Requirements 75 Credit Hours

NETWORKING TECHNOLOGY

The Networking Technology curriculum prepares individuals for employment supporting local- and wide-area networks. Students will learn how to use technologies to provide for data, voice, image, and video communications in business, industry, and education.

Course work includes design, installation, configuration, and management of local- and wide-area network hardware and software. Emphasis is placed on developing proficiency in the use of network management software and the use of hardware such as bridges and routers.

Graduates may find employment in entry-level jobs as local area network managers, network operators, network analysts, and network technicians. Graduates may also be qualified to take

certification examinations for various network products, depending on their local program.

NETWORKING TECHNOLOGY — A25340

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
HUM 115	Critical Thinking.....	3
MAT 145	Analytical Mathematics	3
MAT 145A	Analytical Mathematics Lab.....	1
PSY 118	Interpersonal Psychology	3

Major Courses

CIS 110	Introduction to Computers	3
CIS 115	Introduction to Programming and Logic	3
CTS 115	Information Systems Business Concepts	3
CTS 120	Hardware/Software Support	3
DBA 110	Database Concepts	3
NET 125	Networking Basics	3
NET 126	Routing Basics	3
NET 225	Routing and Switching I	3
NET 226	Routing and Switching II	3
NET 240	Network Design.....	3
NOS 110	Operating Systems Concepts.....	3
NOS 120	Linux/UNIX Single User.....	3
NOS 130	Windows Single User.....	3
NOS 230	Windows Administration I	3
SEC 110	Security Concepts.....	3

Major Electives List 1

Select one of the following complete sets of courses

MCSE Option

NET 198	Seminar in Networking Technology	3
NET 260	Internet Development and Support	3
NOS 231	Windows Administration II	3
NOS 232	Windows Administration III	3

CCNP Option

NET 270	Building Scalable Networks	3
NET 271	Remote Access Networks	3
NET 272	Multi-Layer Networks	3
NET 273	Internetworking Support.....	3

Red Hat Option

NOS 220	Linux/UNIX Administration I.....	3
NOS 221	Linux/UNIX Administration II.....	3
NOS 222	Linux/UNIX Administration III.....	3
NOS 232	Windows Administration III	3

Data Communication Security Option

TNE 231	Data Communication over WAN	3
TNE 235	Internet Routing.....	3
TNE 242	Data Network Design	3
TNE 245	Network Perimeter Security.....	3

Graduation Requirements 73 Credit Hours

OFFICE SYSTEMS TECHNOLOGY

The Office Systems Technology curriculum prepares individuals for positions in administrative support careers. It equips office professionals to respond to the demands of a dynamic computerized workplace.

Students will complete courses designed to develop proficiency in the use of integrated software, oral and written communication, analysis and coordination of office duties and systems, and other support topics. Emphasis is placed on non-technical as well as technical skills.

Graduates should qualify for employment in a variety of positions in business, government, and industry. Job classifications range from entry-level to supervisor to middle management.

OFFICE SYSTEMS TECHNOLOGY — A25360

General Education Courses

ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
or		
ENG 138	English Grammar.....	3
MAT 115	Mathematical Models	3
PSY 118	Interpersonal Psychology.....	3
	Humanities/Fine Arts Elective	3

Major Courses

BUS 260	Business Communications.....	3
CIS 111	Basic PC Literacy	2
CIS 120	Spreadsheet I	3
CIS 152	Database Concepts and Applications.....	3
CIS 169	Business Presentations.....	2
OST 122	Office Computations.....	2
OST 132	Keyboard Skill Building.....	2
OST 134	Text Entry and Formatting.....	3
OST 135	Advanced Text Entry and Formatting	4
OST 136	Word Processing	2
OST 137	Office Software Applications	2
OST 138	Advanced Software Applications	3
OST 164	Text Editing Applications.....	3
OST 181	Introduction to Office Systems	3
OST 184	Records Management.....	2
OST 188	Issues in Office Technology.....	2
OST 233	Office Publications Design	3
OST 236	Advanced Word/Information Processing	3
OST 284	Emerging Technologies	2
OST 286	Professional Development	3
OST 289	Office Systems Management.....	3
OST 298	Seminar in Office Systems Financial Software	3

Co-op Work Experience

Select 2 hours from the following courses

COE 111	Co-op Work Experience I.....	1
COE 112	Co-op Work Experience I.....	2
COE 121	Co-op Work Experience II.....	1

Graduation Requirements..... 75 Credit Hours

OFFICE SYSTEMS TECHNOLOGY/LEGAL

Legal is a concentration under the curriculum title of Office Systems Technology. This curriculum prepares individuals for entry-level positions in legal or government-related offices and provides professional development for the currently employed.

Course work includes terminology, operational procedures, preparation and transcription of documents, computer software, and court-related functions as they relate to the legal office profession. Emphasis is placed on the development of accuracy, organizational skills, discretion, and professionalism.

Graduates should qualify for employment in corporate legal departments; private practices, including real estate and estate planning; and city, state, and federal government offices. With appropriate work experience, graduates may apply for certification as a Professional Legal Secretary (PLS).

OFFICE SYSTEMS TECHNOLOGY/LEGAL — A2536A

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
	or	
ENG 138	English Grammar	3
MAT 115	Mathematical Models	3
PSY 118	Interpersonal Psychology	3
	Humanities/Fine Arts Elective	3

Major Courses

BUS 115	Business Law I	3
BUS 260	Business Communications	3
CIS 111	Basic PC Literacy	2
CIS 120	Spreadsheet I	3
CIS 152	Database Concepts and Applications	3
CIS 169	Business Presentations	2
OST 132	Keyboard Skill Building	2
OST 134	Text Entry and Formatting	3
OST 135	Advanced Text Entry and Formatting	4
OST 136	Word Processing	2
OST 137	Office Software Applications	2
OST 155	Legal Terminology	3
OST 156	Legal Office Procedures	3
OST 164	Text Editing Applications	3
OST 184	Records Management	2
OST 236	Advanced Word/Information Processing	3
OST 252	Legal Transcription I	3
OST 284	Emerging Technologies	2
OST 286	Professional Development	3
OST 289	Office Systems Management	3

Co-op Work Experience

Select 2 hours from the following courses

COE 111	Co-op Work Experience I	1
COE 112	Co-op Work Experience I	2
COE 121	Co-op Work Experience II	1

Graduation Requirements 71 Credit Hours

RADIOGRAPHY

The Radiography curriculum prepares the graduate to be a radiographer, a skilled health care professional who uses radiation to produce images of the human body.

Course work includes clinical rotations to area health care facilities, radiographic exposure, image processing, radiographic procedures, physics, pathology, patient care and management, radiation protection, quality assurance, anatomy and physiology, and radiobiology.

Graduates of accredited programs are eligible to apply to take the American Registry of Radiologic Technologists' national examination for certification and registration as medical radiographers. Graduates may be employed in hospitals, clinics, physicians' offices, medical laboratories, government agencies, and industry.

RADIOGRAPHY — A45700

General Education Courses

BIO 163	Basic Anatomy and Physiology	5
ENG 111	Expository Writing	3
ENG 112	Argument-Based Research	3
HUM 115	Critical Thinking	3
PSY 150	General Psychology	3

Major Courses

CIS 111	Basic PC Literacy	2
RAD 110	Radiography Introduction and Patient Care	3
RAD 111	Radiographic Procedures I	4
RAD 112	Radiographic Procedures II	4
RAD 121	Radiographic Imaging I	3
RAD 122	Radiographic Imaging II	2
RAD 131	Radiographic Physics I	2
RAD 151	Radiographic Clinical Education I	2
RAD 161	Radiographic Clinical Education II	5
RAD 171	Radiographic Clinical Education III	4
RAD 211	Radiographic Procedures III	3
RAD 231	Radiographic Physics II	2
RAD 241	Radiation Protection	2
RAD 245	Radiographic Quality Management	2
RAD 251	Radiographic Clinical Education IV	7
RAD 261	Radiographic Clinical Education V	7
RAD 271	Radiography Capstone	1

Graduation Requirements..... 72Credit Hours

SIMULATION AND GAME DEVELOPMENT

The Simulation and Game Development curriculum provides a broad background in simulation and game development with practical applications in creative arts, visual arts, audio/video technology, creative writing, modeling, design, programming and management.

Students will receive hands-on training in design, 3D modeling, software engineering, database administration and programming for the purpose of creating simulations and games.

Graduates should qualify for employment as designers, artists, animators, programmers, database administrators, testers, quality assurance analysts, engineers and administrators in the entertainment industry, the health care industry, engineering, forensics, education, NASA and government agencies.

SIMULATION AND GAME DEVELOPMENT—A25450

General Education Courses

DRA	126	Storytelling	3
ENG	111	Expository Writing	3
ENG	113	Literature-Based Research	3
HIS	121	Western Civilization I	3
MAT	121	Algebra/Trigonometry	3
PHY	151	College Physics I	4
PSY	150	General Psychology	3
		Humanities/Fine Arts Elective	3

Major Courses

CTS	115	Information Systems Business Concepts	3
SGD	111	Intro. to Simulation and Game Development	3
SGD	112	SGD Design	3
SGD	113	SGD Programming	3
SGD	114	3D Modeling	3
SGD	161	SG Animation	3
SGD	163	SG Documentation	3
SGD	167	SG Ethics	3
SGD	174	SG Level Design	3
SGD	212	SGD Design II	3
SGD	213	SGD Programming II	3
SGD	214	3D Modeling II	3
SGD	274	SG Level Design II	3
SGD	285	SG Software Engineering	3
SGD	289	SGD Project	3

Major Electives List 1

Select 3 hours from the following courses

CTS	287	Emerging Technologies	3
SGD	123	Windows/Console Programming	3
SGD	124	MMO Programming	3
SGD	125	SG Artificial Intelligence	3
SGD	164	SG Audio/Video	3
SGD	165	SG Character Development	3
SGD	193	Selected Topics in SGD	3

Major Electives List 2

Select 3 hours from the following courses

COE	113	Co-op Work Experience I	3
SGD	126	SG Engine Design	3
SGD	162	SG 3D Animation	3
SGD	166	SG Physiology/Kinesiology	3
SGD	168	Wireless SG Programming	3
SGD	170	Handheld SG Programming	3
SGD	171	Flash SG Programming	3
SGD	172	Virtual SG Environments	3
SGD	173	Lighting/Shading Algorithms	3
SGD	293	Selected Topics in SGD	3

Graduation Requirements 76 Credit Hours

SURVEYING TECHNOLOGY

The Surveying Technology curriculum provides training for technicians in the many areas of surveying. Surveyors are involved in land surveying, route surveying, construction surveying, photogrammetry, mapping, global positioning systems, geographical information systems, and other areas of property description and measurements.

Course work includes the communication and computational skills required for boundary, construction, route, and control surveying, photogrammetry, topography, drainage, surveying law, and subdivision design, with emphasis upon applications of electronic data collection and related software including CAD.

Graduates should qualify for jobs as survey party chief, instrument person, surveying technician, highway surveyor, mapper, GPS technician, and CAD operator. Graduates will be prepared to pursue the requirements necessary to become a Registered Land Surveyor in North Carolina.

SURVEYING TECHNOLOGY — A40380

General Education Courses

ENG	111	Expository Writing	3
ENG	114	Professional Research and Reporting	3
MAT	121	Algebra and Trigonometry	3
		Humanities/Fine Arts Elective	3
		Social/Behavioral Science Elective	3

Major Courses

CIS	111	Basic PC Literacy	2
CIV	110	Statics/Strength of Materials	4
CIV	125	Civil/Surveying CAD	3
		or	
DFT	120	Advanced CAD	2
CIV	211	Hydraulics and Hydrology	3
COE	112	Co-op Work Experience I	2
DFT	119	Basic CAD	2
EGR	115	Introduction to Technology	4
GIS	111	Introduction to GIS	3
GIS	112	Introduction to GPS	3
MAT	122	Algebra/Trigonometry II	3
SRV	110	Surveying I	4
SRV	111	Surveying II	4
SRV	210	Surveying III	4
SRV	220	Surveying Law	3
SRV	230	Subdivision Planning	3
SRV	240	Topography/Site Surveying	4
SRV	260	Field and Office Practices	2
SRV	297	Seminar in Surveying Technology	2

Graduation Requirements 68 Credit Hours

WEB TECHNOLOGIES

The Web Technologies curriculum prepares graduates for careers in the information technology arena using computers and distributed computing to disseminate and collect information via the web.

Course work in this program covers the terminology and use of computers, network devices, networks, servers, databases, applications, programming languages, as well as web applications, site development and design. Studies will provide opportunity for students to learn related industry standards.

Graduates should qualify for career opportunities as designers, administrators, or developers in the areas of web applications, websites, web services, and related areas of distributed computing.

WEB 186	XML Technology.....	3
WEB 220	Advanced Multimedia.....	3
WEB 289	Internet Technologies Project.....	3
WEB 293	Selected Topics in Web Technologies.....	3
WEB 298	Seminar in Web Technologies: Macromedia Fireworks/Advanced Dreamweaver.....	3

Graduation Requirements..... 73 Credit Hours

WEB TECHNOLOGIES — A25290

General Education Courses

ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
MAT 145	Analytical Mathematics.....	3
MAT 145A	Analytical Mathematics Lab.....	1
PSY 150	General Psychology.....	3
	Humanities/Fine Arts Elective.....	3

Major Courses

CIS 110	Introduction to Computers.....	3
CIS 115	Introduction to Programming and Logic.....	3
CTS 115	Information Systems Business Concepts.....	3
DBA 110	Database Concepts.....	3
NET 110	Networking Concepts.....	3
NOS 110	Operating System Concepts.....	3
SEC 110	Security Concepts.....	3
WEB 110	Internet/Web Fundamentals.....	3
WEB 111	Introduction to Web Graphics.....	3
WEB 115	Web Markup and Scripting.....	3
WEB 120	Introduction to Internet Multimedia.....	3
WEB 140	Web Development Tools.....	3
WEB 180	Active Server Pages.....	3
WEB 210	Web Design.....	3
WEB 230	Implementing Web Servers.....	3
WEB 250	Database-Driven Websites.....	3
WEB 260	E-Commerce Infrastructure.....	3

Major Electives List 1

Select 3 hours from the following courses

COE 113	Co-op Work Experience I.....	3
WEB 182	PHP Programming.....	3
WEB 187	Wireless/Internet Programming.....	3
WEB 193	Selected Topics in Web Technologies.....	3
WEB 198	Seminar in Web Technologies: Microsoft FrontPage..	3
WEB 211	Advanced Web Graphics.....	3
WEB 215	Advanced Markup and Scripting.....	3
WEB 285	Emerging Web Technologies.....	3

Major Electives List 2

Select 3 hours from the following courses

CSC 141	Visual C++ Programming.....	3
GRD 110	Typography I.....	3
GRD 151	Computer Design Basics.....	3
WEB 185	ColdFusion Programming.....	3

DIPLOMA PROGRAMS*

- Air Conditioning, Heating, and Refrigeration Technology
- Automotive Systems Technology
- Computed Tomography and Magnetic Resonance Imaging Technology
- Dental Assisting
- Early Childhood Associate
- Electrical/Electronics Technology
- Heavy Equipment and Transport Technology/Construction Equipment Systems
- Industrial Systems Technology
- Machining Technology
- Manufacturing Technology/Plastics †
- Mechanical Drafting Technology
- Medical Assisting
- Office Systems Technology
- Plumbing
- Simulation and Game Development
- Surgical Technology
- Therapeutic Massage
- Welding Technology



*Students should contact their advisors for updates to program offerings. Students admitted to programs that require a clinical or co-op component may be required to provide the college with an official criminal background check in order to meet the requirements of the clinical or co-op site. Convictions for certain crimes and/or evidence of drug use may disqualify students from participating in clinical or co-op experiences, which would limit their progress toward graduation.

AIR CONDITIONING, HEATING, AND REFRIGERATION TECHNOLOGY

The Air Conditioning, Heating, and Refrigeration Technology curriculum provides the basic knowledge to develop skills necessary to work with residential and light commercial systems.

Topics include mechanical refrigeration, heating and cooling theory, electricity, controls, and safety. The diploma program covers air conditioning, furnaces, heat pumps, tools and instruments.

Diploma graduates should be able to assist in the start up, preventive maintenance, service, repair, and/or installation of residential and light commercial systems. AAS degree graduates should be able to demonstrate an understanding of system selection and balance and advanced systems.

AIR CONDITIONING, HEATING, AND REFRIGERATION TECHNOLOGY — D35100A

General Education Courses

ENG	110	Freshman Composition.....	3
PHY	121	Applied Physics I.....	4

*Changes may have been made since the printing of this catalog. Students should be in contact with their advisors for updates. Selected Topics and Seminar courses are designed to provide students the opportunity to explore areas of current interest appropriate to the discipline. Course content varies and may include an introduction to emerging technologies, advanced topics, preparation for an appropriate certification examination and may require appropriate pre- and corequisites.

Major Courses

AHR	110	Introduction to Refrigeration.....	5
AHR	111	HVACR Electricity.....	3
AHR	112	Heating Technology.....	4
AHR	113	Comfort Cooling.....	4
AHR	114	Heat Pump Technology.....	4
AHR	115	Refrigeration Systems.....	2
AHR	130	HVAC Controls.....	3
AHR	133	HVAC Servicing.....	4
AHR	151	HVAC Duct Systems I.....	2
AHR	160	Refrigerant Certification.....	1
AHR	210	Residential Building Code.....	2
AHR	211	Residential System Design.....	3
WLD	112	Basic Welding Processes.....	2

Graduation Requirements..... 46 Credit Hours

AUTOMOTIVE SYSTEMS TECHNOLOGY

The Automotive Systems Technology curriculum prepares individuals for employment as automotive service technicians. It provides an introduction to automotive careers and increases student awareness of the challenges associated with this fast and ever-changing field.

Classroom and lab experiences integrate technical and academic course work. Emphasis is placed on theory, servicing and operation of brakes, electrical/electronic systems, engine performance, steering/suspension, automatic transmission/transaxles, engine repair, climate control, and manual drive trains.

Upon completion of this curriculum, students should be prepared to take the ASE exam and be ready for full-time employment in dealerships and repair shops in the automotive service industry.

AUTOMOTIVE SYSTEMS TECHNOLOGY — D60160A

General Education Courses

ENG	110	Freshmen Composition.....	3
PHY	121	Applied Physics I	4

Major Courses

AUT	115	Engine Fundamentals.....	3
AUT	116	Engine Repair.....	2
AUT	131	Drive Trains	3
AUT	132	Drive Trains Lab.....	1
AUT	141	Suspension and Steering Systems	4
AUT	151	Brake Systems	3
AUT	152	Brake Systems Lab	1
AUT	161	Electrical Systems.....	4
AUT	162	Chassis Electrical and Electronics.....	3
AUT	171	Heating and Air Conditioning.....	3
AUT	281	Advanced Engine Performance.....	3
AUT	282	Engine Electrical Management.....	6

Graduation Requirements43 Credit Hours

COMPUTED TOMOGRAPHY AND MAGNETIC RESONANCE IMAGING TECHNOLOGY

The Computed Tomography and Magnetic Resonance Imaging Technology curriculum, a specialty for radiographers, prepares the individual to use specialized equipment to visualize cross-sectional anatomical structures and aid physicians in the demonstration of pathologies and disease processes. *Individuals entering this curriculum must be registered or registry eligible radiologic technologists by the American Registry of Radiologic Technologists.*

Course work prepares the technologist to provide patient care and perform studies utilizing imaging equipment, professional communication, and quality assurance in scheduled and emergency procedures through academic and clinical studies.

Graduates may be eligible to sit for the American Registry of Radiologic Technologists Advanced-Level testing in Computed Tomography and/or Magnetic Resonance Imaging examinations. They may find employment in facilities which perform these imaging procedures.

COMPUTED TOMOGRAPHY AND MAGNETIC RESONANCE IMAGING TECHNOLOGY — D45200

General Education Courses

ENG	111	Expository Writing.....	3
HUM	110	Technology and Society	3
		or	
HUM	115	Critical Thinking	3

Major Courses

CAT	210	CT Physics and Equipment.....	3
CAT	211	CT Procedures.....	4
CAT	231	CT Clinical Practicum.....	11
MRI	210	MRI Physics and Equipment.....	3
MRI	211	MRI Procedures	4
MRI	225	MRI Clinical Practicum.....	5
MRI	231	MRI Clinical Practicum.....	11

Graduation Requirements47 Credit Hours

DENTAL ASSISTING

The Dental Assisting curriculum prepares individuals to assist the dentist in the delivery of dental treatment and to function as integral members of the dental team while performing chairside and related office and laboratory procedures.

Course work includes instruction in general studies, biomedical sciences, dental sciences, clinical sciences, and clinical practice. A combination of lecture, laboratory, and clinical experiences provide students with knowledge in infection/hazard control, radiography, dental materials, preventive dentistry, and clinical procedures.

Graduates may be eligible to take the Dental Assisting National Board Examination to become Certified Dental Assistants. As a Dental Assistant II, defined by the Dental Laws of North Carolina, graduates work in dental offices and other related areas.

DENTAL ASSISTING — D45240

General Education Courses

BIO	106	Introduction to Anatomy/ Physiology/Microbiology.....	3
COM	120	Interpersonal Communication	3
ENG	111	Expository Writing.....	3
PSY	118	Interpersonal Psychology.....	3

Major Courses

DEN	100	Basic Orofacial Anatomy.....	2
DEN	101	Preclinical Procedures.....	7
DEN	102	Dental Materials.....	5
DEN	103	Dental Sciences.....	2
DEN	104	Dental Health Education.....	3
DEN	105	Practice Management	2
DEN	106	Clinical Practice I	5
DEN	107	Clinical Practice II	5
DEN	110	Orofacial Anatomy	3
DEN	111	Infection/Hazard Control.....	2
DEN	112	Dental Radiography.....	3

Graduation Requirements..... 45 Credit Hours

EARLY CHILDHOOD ASSOCIATE

The Early Childhood diploma prepares individuals to work as assistants with early childhood specialists in children centers, nursery schools, kindergartens, child development centers, hospitals, institutions, camps, and recreation centers. This curriculum provides course work to meet the requirements for middle-level employment and upgrading or the retraining of staff in child development facilities. Instruction includes theory and application in early childhood, growth, and development of children, behavior patterns of children, health practices, and how to deal with the emotional and physical problems of children.

EARLY CHILDHOOD ASSOCIATE — D55220A

General Education Courses

ENG	111	Expository Writing	3
ENG	112	Argument-Based Research	3
MAT	115	Mathematical Models	3
PSY	150	General Psychology	3

Major Courses

COE	111	Co-op Work Experience I	1
COE	121	Co-op Work Experience II	1
EDU	119	Early Childhood Education	4
EDU	131	Child, Family, and Community	3
EDU	144	Child Development I	3
EDU	145	Child Development II	3
EDU	146	Child Guidance	3
EDU	151	Creative Activities	3
EDU	153	Health, Safety, and Nutrition	3
EDU	157	Active Play	3
EDU	185	Cognitive and Language Activities	3
EDU	221	Children with Special Needs	3

Graduation Requirements45 Credit Hours

ELECTRICAL/ELECTRONICS TECHNOLOGY

The Electrical/Electronics Technology curriculum is designed to provide training for persons interested in the installation and maintenance of electrical/electronic systems found in residential, commercial, and industrial facilities.

Training, most of which is hands-on, will include such topics as AC/DC theory, basic wiring practices, digital electronics, programmable logic controllers, industrial motor controls, the National Electrical Code, and other subjects as local needs require.

Graduates should qualify for a variety of jobs in the electrical/electronics field as an on-the-job trainee or apprentice assisting in the layout, installation, and maintenance of electrical/electronic systems.

ELECTRICAL/ELECTRONICS TECHNOLOGY — D35220A

General Education Courses

ENG	110	Freshman Composition	3
PSY	118	Interpersonal Psychology	3

Major Courses

ELC	112	DC/AC Electricity	5
ELC	113	Basic Wiring I	4
ELC	114	Basic Wiring II	4
ELC	115	Industrial Wiring	4
ELC	117	Motors and Controls	4
ELC	118	National Electrical Code	2
ELC	119	NEC Calculations	2
ELC	126	Electrical Computations	3
ELC	128	Introduction to PLC	3
ELC	134	Transformer Applications	2
ELN	229	Industrial Electronics	4

Graduation Requirements43 Credit Hours

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY/CONSTRUCTION EQUIPMENT SYSTEMS

Construction Equipment Systems is a concentration under the curriculum title of Heavy Equipment and Transport Technology. This curriculum is designed to provide individuals with the knowledge and skills needed to troubleshoot and repair construction equipment systems. Construction equipment includes dozers, scrapers, loaders, and forklifts.

The core course work includes the theory of operations, troubleshooting techniques, and repair procedures for engines and electrical and hydraulics systems. The concentration courses will include transmissions, brakes, undercarriage, and equipment repair. Other related courses will be required.

Graduates of the curriculum should qualify for entry-level employment opportunities at businesses which repair construction equipment. Entry and advancement levels depend on the amount of training completed, knowledge and ability levels, work performance, and ethics.

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY/CONSTRUCTION EQUIPMENT SYSTEMS — D6024BA

General Education Courses

ENG	110	Freshman Composition	3
PHY	121	Applied Physics I	4

Major Courses

ELC	127	Software for Technicians	2
HET	110	Diesel Engines	6
HET	112	Diesel Electrical Systems	5
HET	114	Power Trains	5
HET	134	Mechanical Fuel Injection	3
HYD	134	Hydraulic/Hydrostatic Construction	4
PME	113	Construction Equipment Repair	2
PME	117	Equipment Braking Systems	3
PME	118	Undercarriage Components	2

Major Electives

Select 6 hours from the following courses

ELN	112	Diesel Electronics System	4
ELN	113	Electronic Fuel Injection	2
HET	115	Electronic Engines	3
HET	128	Medium/Heavy Duty Tune-up	2
HET	192	Selected Topics in Heavy Equipment and Transport Technology	2

Hydraulics Elective

Select one of the following courses

HYD	111	Mobile Hydraulic Systems	3
HYD	112	Hydraulics/Medium/Heavy Duty	2

Graduation Requirements47-48 Credit Hours

INDUSTRIAL SYSTEMS TECHNOLOGY

The Industrial Systems Technology curriculum is designed to prepare or upgrade individuals to safely service, maintain, repair, or install equipment. Instruction includes theory and skill training needed for inspecting, testing, troubleshooting, and diagnosing industrial systems.

Students will learn multi-craft technical skills in blueprint reading, mechanical systems maintenance, electricity, hydraulics/pneumatics, welding, machining or fabrication, and includes various diagnostic and repair procedures. Practical application in these industrial systems will be emphasized and additional advanced course work may be offered.

Upon completion of this curriculum, graduates should be able to individually, or with a team, safely install, inspect, diagnose, repair, and maintain industrial process and support equipment. Students will also be encouraged to develop their skills as life-long learners.

INDUSTRIAL SYSTEMS TECHNOLOGY — D50240A

General Education Courses

ENG 110	Freshman Composition.....	3
PSY 118	Interpersonal Psychology.....	3

Major Courses

AHR 112	Heating Technology.....	4
AHR 113	Comfort Cooling.....	4
BPR 130	Blueprint Reading/Construction.....	2
ELC 112	DC/AC Electricity.....	5
HYD 110	Hydraulics/Pneumatics I.....	3
ISC 110	Workplace Safety.....	1
MEC 111	Machine Processes I.....	3
MNT 110	Introduction to Maintenance Procedures.....	2
MNT 150	Basic Building Maintenance.....	2
MNT 240	Industrial Equipment Troubleshooting.....	2
PLU 111	Introduction to Basic Plumbing.....	2
WLD 112	Basic Welding Processes.....	2

Graduation Requirements38 Credit Hours

MACHINING TECHNOLOGY

The Machining Technology curriculum is designed to develop skills in the theory and safe use of hand tools, power machinery, computerized equipment, and sophisticated precision inspection instruments.

Students will learn to interpret blueprints, set up manual and CNC machines, perform basic and advanced machining operations, and make decisions to ensure that work quality is maintained.

Employment opportunities for machining technicians exist in manufacturing industries, public institutions, governmental agencies, and in a wide range of specialty machining job shops.

MACHINING TECHNOLOGY — D50300A

General Education Courses

ENG 110	Freshman Composition.....	3
PHY 121	Applied Physics I.....	4

Major Courses

BPR 111	Blueprint Reading.....	2
BPR 121	Blueprint Reading: Mechanical.....	2
MAC 111	Machining Technology I.....	6
MAC 112	Machining Technology II.....	6
MAC 113	Machining Technology III.....	6
MAC 121	Introduction to CNC.....	2
MAC 122	CNC Turning.....	2
MAC 124	CNC Milling.....	2
MAC 151	Machining Calculations.....	2
MAC 152	Advanced Machining Calculations.....	2
MEC 141	Introduction to Manufacturing Processes.....	3

Graduation Requirements..... 42 Credit Hours

MANUFACTURING TECHNOLOGY/PLASTICS †

Plastics is a concentration under the curriculum title of Manufacturing Technology. This curriculum provides training in all aspects of the polymer processing industry, one of today's fastest growing manufacturing technologies. It will prepare individuals for employment by utilizing the latest technologies in both plastics materials and plastics processing.

Course work includes rigorous study of the polymer processing industry, including materials technology, injection molding, extrusion, thermoforming, blow molding and other related areas. Students also will gain knowledge in machine operation, maintenance, setup, design and research, quality assurance and safety.

Diploma graduates should qualify for employment in the design and/or production of plastic-related items, including such job titles as molding technician, estimator, QC technician, setup technician or supervisor.

MANUFACTURING TECHNOLOGY/PLASTICS – D5032AB †

General Education Courses

ENG 111	Expository Writing.....	3
MAT 115	Mathematical Models.....	3
	or	
MAT 121	Algebra and Trigonometry.....	3
CHM 131	Introduction to Chemistry.....	3
CHM 131A	Introduction to Chemistry Lab.....	1

Major Courses

ISC 112	Industrial Safety.....	2
MEC 180	Engineering Materials.....	3
PLA 115	Polymer Processing.....	3
PLA 120	Injection Molding.....	3
PLA 210	Mold Maintenance/Design.....	3
PLA 215	Polymeric Materials.....	3
PLA 220	Moldflow.....	3

Major Electives List 1

Choose one of the following

ATR 112	Introduction to Automation.....	3
HYD 110	Hydraulics/Pneumatics I.....	3
ISC 128	Industrial Leadership.....	2

Major Electives List 2

Choose one of the following

PLA 225	Extrusion.....	3
PLA 230	Advanced Plastics Manufacturing.....	4

Graduation Requirements 38 Credit Hours

**MECHANICAL
DRAFTING TECHNOLOGY**

The Mechanical Drafting Technology curriculum prepares technicians to produce drawings of mechanical parts, components of mechanical systems, and mechanisms. CAD and the importance of technically correct drawings and designs based on current standards are emphasized.

Course work includes mechanical drafting, CAD, and proper drawing documentation. Concepts such as machine shop processes, basic materials, and physical sciences as they relate to the design process are also included. The use of proper dimensioning and tolerance techniques is stressed.

Graduates should qualify for employment in mechanical areas such as manufacturing, fabrication, research and development, and service industries.

**MECHANICAL DRAFTING
TECHNOLOGY — D50340A**

General Education Courses

ENG 110	Freshman Composition.....	3
PSY 118	Interpersonal Psychology	3

Major Courses

DDF 211	Design Drafting I.....	4
DDF 221	Design Drafting Project	2
DFT 111	Technical Drafting I	2
DFT 111A	Technical Drafting I Lab	1
DFT 112	Technical Drafting II	2
DFT 112A	Technical Drafting II Lab	1
DFT 121	Introduction to GD and T.....	2
DFT 151	CAD I	3
DFT 152	CAD II	3
DFT 153	CAD III	3
DFT 214	Descriptive Geometry	2
ISC 110	Workplace Safety	1
MEC 110	Introduction to CAD/CAM	2
MEC 111	Machine Processes I.....	3
MEC 141	Introduction to Manufacturing Processes.....	3

Graduation Requirements40 Credit Hours

MEDICAL ASSISTING

The Medical Assisting curriculum prepares multi-skilled health care professionals qualified to perform administrative, clinical, and laboratory procedures.

Course work includes instruction in scheduling appointments, coding and processing insurance accounts, billing, collections, medical transcription, computer operations; assisting with examinations/treatments, performing routine laboratory procedures, electro-cardiography, supervised medication administration; and ethical/legal issues associated with patient care.

The Medical Assisting Diploma program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Curriculum Review Board of The American Association of Medical Assistants Endowment (CRB-AAMAE).

Graduates of CAAHEP accredited medical assisting diploma program may be eligible to sit for the American Association of Medical Assistants' Certification Examination to become Certified Medical Assistants. Employment opportunities include physicians' offices, health maintenance organizations, health departments, and hospitals.

**MEDICAL
ASSISTING — D45400A**

General Education Courses

ENG 111	Expository Writing.....	3
MAT 110	Mathematical Measurement.....	3

Major Courses

BIO 161	Intro to Human Biology.....	3
MED 110	Orientation to Medical Assisting.....	1
MED 113	Orientation to Clinical Setting II.....	2
MED 114	Professional Interaction in Health Care	1
MED 118	Medical Law and Ethics.....	2
MED 121	Medical Terminology I	3
MED 122	Medical Terminology II	3
MED 130	Administrative Office Procedures I.....	2
MED 131	Administrative Office Procedures II.....	2
MED 134	Medical Transcription	3
MED 140	Examining Room Procedures I	5
MED 150	Laboratory Procedures I.....	5
MED 260	Medical Clinical Externship	5
MED 262	Clinical Perspectives	1

Graduation Requirements..... 44 Credit Hours

**OFFICE
SYSTEMS TECHNOLOGY**

The Office Systems Technology diploma program is designed for the individual entering, upgrading, or retraining in the office occupation field. Special emphasis is on keyboarding and basic office duties and responsibilities.

Through study in areas such as keyboarding, records management, written communications, machine transcription, and word processing the individual will be able to function effectively in a variety of office occupations.

**OFFICE SYSTEMS
TECHNOLOGY — D25360A**

General Education Courses

ENG 111	Expository Writing.....	3
ENG 114	Professional Research and Reporting.....	3
or		
ENG 138	English Grammar.....	3

Major Courses

CIS 111	Basic PC Literacy	2
CIS 120	Spreadsheet I.....	3
OST 122	Office Computations	2
OST 134	Text Entry and Formatting.....	3
OST 136	Word Processing	2
OST 137	Office Software Applications	2
OST 164	Text Editing Applications	3

OST	181	Introduction to Office Systems.....	3
OST	184	Records Management.....	2
OST	233	Office Publications Design.....	3
OST	236	Advanced Word/Information Processing.....	3
OST	286	Professional Development.....	3

Graduation Requirements37 Credit Hours

PLUMBING

The Plumbing curriculum is designed to give individuals the opportunity to acquire basic skills to assist with the installation and repair of plumbing systems in residential and small buildings.

Course work includes sketching diagrams, interpretation of blueprints, and practices in plumbing assembly. Students will gain knowledge of state codes and requirements.

Graduates should qualify for employment at parts supply houses, maintenance companies, and plumbing contractors to assist with various plumbing applications.

PLUMBING — D35300

General Education Courses

ENG	110	Freshman Composition.....	3
PHY	121	Applied Physics I.....	4

Major Courses

BPR	130	Blueprint Reading/Construction.....	2
PLU	110	Modern Plumbing.....	9
PLU	120	Plumbing Applications.....	9
PLU	130	Plumbing Systems.....	6
PLU	140	Introduction to Plumbing Codes.....	2
PLU	150	Plumbing Diagrams.....	2
PLU	192	Selected Topics in Plumbing.....	2
WLD	112	Basic Welding Processes.....	2

Graduation Requirements41 Credit Hours

SIMULATION AND GAME DEVELOPMENT

This diploma is designed for individuals seeking employment in the digital game, movie industry, or related companies, as game programmers, programmer trainees, game testers or designers/developers.

Topics include the study of applications in game engines, logic, graphics, game programming API's, game design implementation techniques. Primary emphasis is hands-on training in digital game design/programming that provides a student the ability to adapt as digital game technology evolves. Upon completion, students will have the necessary skills to develop computer games using appropriate tools.

SIMULATION AND GAME DEVELOPMENT — D25450A

General Education Courses

DRA	126	Storytelling.....	3
ENG	111	Expository Writing.....	3
MAT	121	Algebra/Trigonometry I.....	3

Major Courses

CTS	115	Information Systems Business Concepts.....	3
SGD	111	Introduction to Simulation and Game Development.....	3
SGD	112	SGD Design.....	3
SGD	113	SGD Programming.....	3
SGD	114	3D Modeling.....	3
SGD	174	SG Level Design.....	3
SGD	212	SGD Design II.....	3
SGD	213	SGD Programming II.....	3
SGD	214	3D Modeling II.....	3
SGD	285	Software Engineering.....	3
SGD	289	SGD Project.....	3

Major Electives

Select 3 hours from the following courses

COE	113	Co-op Work Experience I.....	3
SGD	126	SG Engine Design.....	3
SGD	162	SG 3D Animation.....	3
SGD	166	SG Physiology/Kinesiology.....	3
SGD	168	Wireless SG Programming.....	3
SGD	170	Handheld SG Programming.....	3
SGD	171	Flash SG Programming.....	3
SGD	172	Virtual SG Environments.....	3
SGD	173	Lighting/Shading Algorithms.....	3
SGD	293	Selected Topics in SGD.....	3

Graduation Requirements45 Credit Hours

SURGICAL TECHNOLOGY

The Surgical Technology curriculum prepares individuals to assist in the care of the surgical patient in the operating room and to function as a member of the surgical team.

Students will apply theoretical knowledge to the care of patients undergoing surgery and develop skills necessary to prepare supplies, equipment, and instruments; maintain aseptic conditions; prepare patients for surgery; and assist surgeons during operations.

Employment opportunities include labor/delivery/ emergency departments, inpatient/ outpatient surgery centers, dialysis units/facilities, physicians' offices, and central supply processing units.

SURGICAL TECHNOLOGY — D45740

General Education Courses

ENG	111	Expository Writing.....	3
BIO	163	Basic Anatomy and Physiology.....	5

Major Courses

SUR	110	Introduction to Surgical Technology.....	3
SUR	111	Preoperative Patient Care.....	7
SUR	122	Surgical Procedures I.....	6
SUR	123	Clinical Practice I.....	7
SUR	134	Surgical Procedures II.....	5
SUR	135	Clinical Practice II.....	4
SUR	137	Professional Success Preparation.....	1

Graduation Requirements41 Credit Hours

THERAPEUTIC MASSAGE

The Therapeutic Massage curriculum prepares graduate to work in direct client care settings to provide manipulation, methodical pressure, friction and kneading of the body for maintaining wellness or treating alterations in wellness throughout the lifespan.

Courses will include content in normal human anatomy and physiology, therapeutic massage, ethical/legal issues, business practices, nutrition and psychology.

Employment opportunities in North Carolina may be found in hospitals, rehabilitation centers, health departments, home health, medical offices, nursing homes, spas, health and sports clubs, and private practice. Graduates may be eligible to take the National Certification for Therapeutic Massage and Bodywork.

WLD 116	SMAW (Stick) Plate/Pipe.....	4
WLD 121	GMAW (MIG) FCAW/Plate.....	4
WLD 122	GMAW (MIG) Plate/Pipe	3
WLD 131	GTAW (TIG) Plate	4
WLD 132	GTAW (TIG) Plate/Pipe.....	3
WLD 141	Symbols and Specifications	3
WLD 261	Certification Practices	2
WLD 262	Inspection and Testing	3

Graduation Requirements.....42 Credit Hours

THERAPEUTIC MASSAGE – D45750

General Education Courses

ENG 111	Expository Writing	3
PSY 118	Interpersonal Psychology.....	3

Major Courses

BIO 155	Nutrition.....	3
or		
BIO 271	Pathophysiology.....	3
BIO 163	Basic Anatomy and Physiology.....	5
BUS 230	Small Business Management	3
MTH 110	Fundamentals of Massage.....	10
MTH 120	Therapeutic Massage Applications.....	10
MTH 125	Ethics of Massage.....	2

Graduation Requirements 39 Credit Hours

WELDING TECHNOLOGY

The Welding Technology curriculum provides students with a sound understanding of the science, technology, and applications essential for successful employment in the welding and metal industry.

Instruction includes consumable and non-consumable electrode welding and cutting processes. Courses in math, blueprint reading, metallurgy, welding inspection, and destructive and non-destructive testing provides the student with industry-standard skills developed through classroom training and practical application.

Successful graduates of the Welding Technology curriculum may be employed as entry-level technicians in welding and metalworking industries. Career opportunities also exist in construction, manufacturing, fabrication, sales, quality control, supervision, and welding-related self-employment.

WELDING TECHNOLOGY — D50420A

General Education Courses

ENG 110	Freshman Composition.....	3
PHY 121	Applied Physics I.....	4

Major Courses

WLD 110	Cutting Processes	2
WLD 111	Oxygen-Fuel Welding	2
WLD 115	SMAW (Stick) Plate.....	5

CERTIFICATE PROGRAMS*

Advertising and Graphic Design:
 Graphics and Design
 Web and Graphic Design
 Air Conditioning, Heating, and Refrigeration Technology
 Architectural Technology: Architectural CAD
 Automation Engineering Technology
 PLC Programming
 Robotics
 Basic Law Enforcement Training
 Business Administration:
 Customer Service
 Entrepreneurship
 Sales Development
 Business Administration/Human Resources Management
 Civil Engineering Technology: Civil Design
 Computed Tomography Technology
 Computer Engineering Technology:
 C-Programming—Open Source Development
 Linux Kernel Development
 Pentium System Architecture
 Computer Information Technology:
 Computer Forensics
 Hardware Troubleshooting (A+)
 IT Support Management
 IT Support Technician (MCDST)
 Microsoft Office Specialist (MOS)
 Spreadsheet Management
 Computer Programming:
 C++ Programming
 Computer Science
 JAVA Programming
 Visual BASIC Programming
 Construction Management Technology
 Culinary Technology
 Culinary Technology: Baking
 Database Management:
 Oracle DBA Programming
 Oracle Developer
 Early Childhood Associate
 Early Childhood Associate: Infant/Toddler Care
 Electrical/Electronics Technology:
 Commercial Wiring Methods
 Residential Wiring Methods
 Electronics Engineering Technology: Basic Electronics
 Heavy Equipment and Transport Technology/ Construction
 Equipment Systems:
 Fuel Injection, Electrical, and Electronics
 Hydraulics, Engines, and Transmissions
 High Performance Computing:
 Bioinformatics Computing
 Linux/Red Hat Administration
 Hotel and Restaurant Management
 Hotel Management
 Restaurant Management
 Human Services Technology/Substance Abuse
 Industrial Engineering Technology:
 Advanced Quality
 Quality Assurance

Information Systems Security: Network Security Administration
 Industrial Systems Technology
 Landscape Architecture Technology: Landscape Architecture
 Machining Technology
 Machining Technology: CNC Machining
 Machining Technology/Tool, Die, and
 Mold Making: Mold Making
 Magnetic Resonance Imaging Technology
 Manufacturing Technology/Plastics:
 Engineering Materials †
 Manufacturing Practices †
 Plastics Extrusion †
 Plastics Injection Molding †
 Mechanical Drafting Technology
 Mechanical Engineering Technology:
 Mechanical Design
 Thermal Mechanics
 Medical Office Administration:
 Medical Billing and Coding
 Medical Office Specialist
 Medical Transcription Specialist
 Networking Technology:
 CISCO Certified Network Associate (CCNA)
 CISCO Certified Network Professional (CCNP)
 Microsoft Certified Systems Engineer (MCSE)
 Nursing Assistant
 Office Systems Technology:
 Integrated Office Systems
 Office Publications Certificate
 Office Specialist I
 Office Specialist II
 Word Processing
 Office Systems Technology/Legal
 Phlebotomy
 Plumbing:
 Applications and Diagrams
 Modern Plumbing Codes and Blueprint Reading
 Real Estate
 Real Estate Appraisal
 Surveying Technology: Surveying
 Web Technologies:
 E-Commerce Programming
 Web Designer
 Web Developer
 Welding Technology

*Students should contact their advisors for updates to program offerings. Students admitted to programs that require a clinical or co-op component may be required to provide the college with an official criminal background check in order to meet the requirements of the clinical or co-op site. Convictions for certain crimes and/or evidence of drug use may disqualify students from participating in clinical or co-op experiences, which would limit their progress toward graduation.

† These programs are not open to new students.

ADVERTISING AND GRAPHIC DESIGN: GRAPHICS AND DESIGN

Day and Evening

Graphics and Design certificate curriculum is designed to provide students with knowledge and skills necessary for employment in the graphic design profession. It emphasizes the use of typography and computer technology in design, advertising, illustration, and digital and multimedia preparation of printed and electronic promotional materials.

Students will be trained in the development of concept and design for promotional materials, such as newspaper and magazine advertisements, posters, folders, letterheads, corporate symbols, brochures, booklets, preparation of art for printing, lettering and typography, photography, and electronic media.

Graduates should qualify for employment opportunities with graphic design studios, advertising agencies, printing companies, department stores, and a wide variety of manufacturing industries, newspapers, and businesses with in-house graphics operations.

ADVERTISING AND GRAPHIC DESIGN: GRAPHICS AND DESIGN — A30100A

GRD 110	Typography I	3
GRD 111	Typography II	3
GRD 151	Computer Design Basics	3
GRD 152	Computer Design Technology I.....	3
GRD 153	Computer Design Technology II.....	3
GRD 263	Illustrative Imaging	3

Completion Requirements18 Credit Hours

ADVERTISING AND GRAPHIC DESIGN: WEB AND GRAPHIC DESIGN

Day and Evening

The Web and Graphic Design certificate curriculum is designed to provide students with the knowledge and skills necessary for employment in the graphic design profession. It emphasizes design, advertising, illustration, and digital and multimedia preparation of electronic, especially Web-based, promotional materials.

Students will be trained in the use of typography, computer design, and Web development tools to develop concept and design for electronic media promotional materials.

Graduates should qualify for employment opportunities with graphic design studios, advertising agencies, printing companies, department stores, and a wide variety of manufacturing industries, newspapers, and businesses with in-house graphics operations.

ADVERTISING AND GRAPHIC DESIGN: WEB AND GRAPHIC DESIGN — A30100B

GRD 110	Typography I	3
GRD 151	Computer Design Basics	3
GRD 152	Computer Design Technology I.....	3
GRD 153	Computer Design Technology II.....	3
WEB 111	Introduction to Web Graphics.....	3
WEB 140	Web Development Tools	3

Completion Requirements 18 Credit Hours

AIR CONDITIONING, HEATING, AND REFRIGERATION TECHNOLOGY

Day and Evening

The Air Conditioning, Heating, and Refrigeration Technology certificate curriculum provides the basic knowledge to develop skills necessary to work with residential systems.

Topics include mechanical refrigeration, heating and cooling theory, electricity, controls, and safety. The certificate program covers air conditioning, furnaces, tools, and instruments.

Certificate graduates should be able to assist in the start up, preventive maintenance, service, repair, and/or installation of residential systems.

AIR CONDITIONING, HEATING, AND REFRIGERATION TECHNOLOGY — C35100B

AHR 111	HVACR Electricity	3
AHR 112a	Heating Technology-Part 1	2
AHR 112b	Heating Technology-Part 2	2
AHR 113	Comfort Cooling	4
AHR 130	HVAC Controls	3
AHR 133	HVAC Servicing.....	4

Completion Requirements 18 Credit Hours

ARCHITECTURAL TECHNOLOGY: ARCHITECTURAL CAD

Day and Evening

The evening Architectural CAD certificate is designed for students employed full-time in architectural engineering or construction positions that require microcomputer knowledge. Courses include basic hands-on architectural drafting in residential construction and computer courses in different types of computer-aided drafting software from basic to advanced levels.

Opportunities for employment exist as junior technicians within architectural practices and engineering and contracting companies.

Courses in this program can be transferred directly into the Architectural Technology associate degree program.

ARCHITECTURAL TECHNOLOGY: ARCHITECTURAL CAD — C40100A

ARC 111	Introduction to Architectural Technology	3
ARC 114	Architectural CAD.....	2
ARC 220	Advanced Architectural CAD	2
ARC 221	Architectural 3-D CAD.....	3
CIV 125	Civil/Surveying CAD.....	3

Completion Requirements 13 Credit Hours

AUTOMATION ENGINEERING TECHNOLOGY: PLC PROGRAMMING

AUTOMATION ENGINEERING TECHNOLOGY: PLC PROGRAMMING — C40120B

ATR 213	Programmable Controllers.....	4
ATR 214	Advanced PLCs	4
ATR 215	Sensors and Transducers	3
ELN 231	Industrial Controls	3

Completion Requirements14 Credit Hours

AUTOMATION ENGINEERING TECHNOLOGY: ROBOTICS

AUTOMATION ENGINEERING TECHNOLOGY: ROBOTICS— C40120C

ATR 211	Robot Programming.....	3
ATR 213	Programmable Controllers.....	4
ATR 214	Advanced PLCs	4
EGR 125	Applications Software for Tech.....	2

Completion Requirements13 Credit Hours

BASIC LAW ENFORCEMENT TRAINING

Day and Evening

Basic Law Enforcement Training (BLET) is designed to give students essential skills required for entry-level employment as law enforcement officers with state, county, or municipal governments, or with private enterprise.

This program utilizes State commission-mandated topics and methods of instruction. General subjects include, but are not limited to, criminal, juvenile, civil, traffic, and alcoholic beverage laws; investigative, patrol, custody, and court procedures; emergency responses; and ethics and community relations.

Students must successfully complete and pass all units of study that include the certification examination mandated by the North Carolina Criminal Justice Education and Training Standards Commission and the North Carolina Sheriffs' Education and Training Standards Commission to receive a certificate.

BASIC LAW ENFORCEMENT TRAINING — C55120

Major Courses

CJC 100	Basic Law Enforcement Training	18
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Completion Requirements18 Credit Hours

BUSINESS ADMINISTRATION: CUSTOMER SERVICE

Day and Evening

Customer Service is a certificate under the Business Administration curriculum. This certificate provides a broad foundation of communication and interpersonal skills designed to prepare the individual for customer contact roles within a business organization.

Employment opportunities include customer service representative, customer services manager, consumer relations credit analyst, credit card specialist, credit and collection specialist, retail sales, accounts control analyst, administrative assistant, authorizations analyst, and telephone sales representatives in both production and service-oriented businesses.

BUSINESS ADMINISTRATION: CUSTOMER SERVICE — C25120B

BUS 110	Introduction to Business.....	3
BUS 121	Business Math.....	3
BUS 151	People Skills.....	3
CIS 111	Basic PC Literacy	2
COM 120	Interpersonal Communication.....	3
MKT 223	Customer Service.....	3

Completion Requirements 17 Credit Hours

BUSINESS ADMINISTRATION: ENTREPRENEURSHIP

Day and Evening

This certificate enables students to recognize business opportunities and develop a business plan for the purpose of securing financing for a business start-up as well as to understand how to effectively operate a small business. Students will learn practical skills and some of the best business practices in establishing and operating a business.

BUSINESS ADMINISTRATION: ENTREPRENEURSHIP — C25120C

BUS 110	Introduction to Business.....	3
BUS 139	Entrepreneurship I.....	3
BUS 245	Entrepreneurship II.....	3
MKT 120	Principles of Marketing.....	3

Completion Requirements 12Credit Hours

BUSINESS ADMINISTRATION: SALES DEVELOPMENT

Day and Evening

This certificate prepares students to enter the sales profession. Study includes accepted principles and techniques of selling, interpersonal skills involving communication fundamentals, and motivation theory. Students learn prospecting and preapproach activities, specific strategies for handling objections, ways to gain an interview, demonstration tools, and closing methods. Study includes both retail selling and industrial selling. The program also includes legal and ethical considerations.

**BUSINESS ADMINISTRATION:
SALES DEVELOPMENT — C25120A**

BUS 121	Business Mathematics.....	3
ENG 111	Expository Writing.....	3
MKT 120	Principles of Marketing.....	3
MKT 123	Fundamentals of Selling.....	3
MKT 221	Consumer Behavior.....	3
PSY 118	Interpersonal Psychology.....	3

Completion Requirements18 Credit Hours

**BUSINESS ADMINISTRATION/
HUMAN RESOURCES
MANAGEMENT**

Evening Only

This program is intended to prepare students for positions in human resource management in business and government. When they are enrolled in the courses unique to this program, students will be expected to practice the routines that they would have as human resource specialists: write job descriptions, interview job applicants, design and conduct training sessions, and evaluate profit-sharing programs. Also, they will gain respect for the growing body of laws, regulations, and court decisions that affect the daily activities of everyone in the workplace. Those completing this program should be able to provide knowledgeable assistance to higher-level managers, either inside or outside the human resource department.

**BUSINESS ADMINISTRATION/HUMAN
RESOURCES MANAGEMENT — C2512CA**

BUS 153	Human Resource Management.....	3
BUS 217	Employment Law and Regulations.....	3
BUS 234	Training and Development.....	3
BUS 256	Recruitment, Selection, and Personnel Planning.....	3
BUS 258	Compensation and Benefits.....	3

Completion Requirements15 Credit Hours

**CIVIL ENGINEERING
TECHNOLOGY:
CIVIL DESIGN**

Day

**CIVIL ENGINEERING TECHNOLOGY:
CIVIL DESIGN— C40140A**

CIV 125	Civil/Surveying CAD.....	3
Or		
DFT 120	Advanced CAD.....	2
DFT 119	Basic CAD.....	2
EGR 115	Introduction to Technology.....	3
GIS 111	Introduction to GIS.....	3
SRV 110	Surveying I.....	4

Completion Requirements 14-15 Credit Hours

**COMPUTED TOMOGRAPHY
TECHNOLOGY**

The Computed Tomography Technology Certificate, a specialty for radiographers, prepares the individual to use specialized equipment to visualize cross-sectional anatomical structures and aid physicians in the demonstration of pathologies and disease processes. **Individuals entering this certificate program must be registered or registry-eligible radiologic technologists by the American Registry of Radiologic Technologists.**

Course work prepares the technologist to provide patient care and perform studies utilizing imaging equipment, professional communication, and quality assurance in scheduled and emergency procedures through academic and clinical studies.

Graduates may be eligible to sit for the American Registry of Radiologic Technologists Advanced-Level testing in the Computed Tomography examination. They may find employment in facilities, which perform these imaging procedures.

**COMPUTED TOMOGRAPHY
TECHNOLOGY — C45200A**

CAT 210	CT Physics and Equipment.....	3
CAT 211	CT Procedures.....	4
CAT 231	CT Clinical Practicum.....	11

Completion Requirements.....18 Credit Hours

**COMPUTER ENGINEERING
TECHNOLOGY: C LANGUAGE
PROGRAMMING—OPEN SOURCE
DEVELOPMENT**

Day and Evening

This certificate provides a solid programming foundation in C and C++, the primary programming languages used for Linux kernel, system, and utility code. Students may choose to substitute Java instead, with permission of the CET department head. Once a solid foundation is built with respect to the key elements of open source programs (i.e. threads, processes, dynamic libraries, and so on), the student will master some of the many tools that support the open source development community. Examples of such tools are CVS, SourceForge, Bugzilla, GNU tools, Eclipse, and scripting languages. The tools covered may evolve to keep pace with the fast changing open source landscape.

Upon completion, students should be able to participate in open source code development, whether contributing bug reports to existing SourceForge projects or sponsoring their own projects.

**COMPUTER ENGINEERING
TECHNOLOGY: C LANGUAGE
PROGRAMMING—OPEN SOURCE
DEVELOPMENT — C40160B**

CET 251	Software Engineering Principles.....	4
CSC 133	C Programming.....	3
CSC 134	C++ Programming.....	3
CSC 233	Advanced C.....	3

Completion Requirements..... 13 Credit Hours

COMPUTER ENGINEERING TECHNOLOGY: LINUX KERNEL DEVELOPMENT

Day and Evening

The Linux phenomenon is driven by a combination of the open source Linux kernel, open source tools, and the widespread porting of these to diverse processor platforms. Linux now runs on everything from cell phones to super-servers, and Linux distributions are too numerous to keep up with.

This certificate provides a foundation in programming languages, development tools, and processor architecture to provide the kernel context, followed by a detailed examination of kernel operation and creation. Various kernel configurations, such as live (CD-bootable) kernels, remote boot (PXE) kernels, and small footprint kernels for embedded systems will be studied and built by the students.

COMPUTER ENGINEERING TECHNOLOGY: LINUX KERNEL DEVELOPMENT — C40160E

CET 193	Selected Topics in Computer Engineering	3
CET 222	Computer Architecture.....	2
CET 251	Software Engineering Principles	4
CSC 233	Advanced C.....	3

Completion Requirements12 Credit Hours

COMPUTER ENGINEERING TECHNOLOGY: PENTIUM SYSTEM ARCHITECTURE

Day and Evening

The Pentium (x86) processor family, long familiar to consumers due to its dominance in the personal computer market, is increasingly being deployed in new settings from aircraft control to embedded robotic systems. Extension of the x86 platform is also driven by the widespread adoption of Linux, a free, high performance operating system applicable to everything from cell phones to super-servers.

This certificate provides the student with a solid foundation in digital electronics and microprocessor operations, followed by a specific examination of the Pentium architecture versus PowerPC, AMD, and various microcontrollers. This certificate can help students build a broad range of skills, from understanding how to tune PC performance to building new processor-based systems of their own..

COMPUTER ENGINEERING TECHNOLOGY: PENTIUM SYSTEM ARCHITECTURE — C40160D

CET 111	Computer Upgrade/Repair I	3
CET 222	Computer Architecture.....	2
ELN 133	Digital Electronics	4
ELN 232	Introduction to Microprocessors	4

Completion Requirements13 Credit Hours

COMPUTER INFORMATION TECHNOLOGY: COMPUTER FORENSICS

Day and Evening

The Computer Forensics certificate is designed to provide students with advanced technical skills and knowledge related to retrieving and securing computer-related information for use in legal investigations.

COMPUTER INFORMATION TECHNOLOGY: COMPUTER FORENSICS—C25260J

CTS 120	Hardware/Software Support	3
CTS 210	Computer Ethics.....	3
CTS 220	Advanced Hardware/Software Support.....	3
CTS 298	Seminar in Computer Information Technology: Computer Forensics	3
NOS 111	Operating System—DOS.....	3

Completion Requirements 15 Credit Hours

COMPUTER INFORMATION TECHNOLOGY: HARDWARE TROUBLESHOOTING

Day and Evening

This certificate is designed for individuals interested in acquiring advanced technical skills and knowledge to maintain and repair personal computers. Students gain skills in buying parts, upgrading, building, and configuring personal computers. Major hands-on topics include documentation, troubleshooting techniques, PC architectures, disk drives and controller cards, memory management, add-on boards, and communications devices.

This certificate is designed to prepare the student for A+ certification. A program prerequisite of CIS 110 or CIS 111 is required.

COMPUTER INFORMATION TECHNOLOGY: HARDWARE TROUBLESHOOTING — C25260G

CTS 120	Hardware/Software Support	3
CTS 220	Advanced Hardware/Software Support.....	3
NET 110	Networking Concepts	3
NOS 110	Operating System Concepts.....	3

Completion Requirements 12 Credit Hours

**COMPUTER INFORMATION
TECHNOLOGY:
IT SUPPORT MANAGEMENT**

Day and Evening

**COMPUTER INFORMATION
TECHNOLOGY:
IT SUPPORT MANAGEMENT—C25260L**

CTS 115	Information Systems Business Concepts	3
CTS 118	IS Professional Communication	2
CTS 240	Project Management.....	3
CTS 255	Advanced Tech Support Functions.....	3
CTS 285	Systems Analysis and Design.....	3
CTS 292	Selected Topics in Computer Information Technology: HDI Management Certificate Preparation	2

Completion Requirements16 Credit Hours

**COMPUTER INFORMATION
TECHNOLOGY:
IT SUPPORT TECHNICIAN**

Day and Evening

This certificate provides students with the knowledge and practical skills necessary to support users of computing technologies. The course work will help students prepare for the Microsoft Certified Desktop Support Technician (MCDST) certification and develop the ability to work in helpdesk and technical support positions.

**COMPUTER INFORMATION
TECHNOLOGY:
IT SUPPORT TECHNICIAN—C25260K**

CTS 155	Tech Support Functions	3
CTS 220	Advanced Hardware/Software Support	3
CTS 250	User Support and Software Evaluation.....	3
CTS 255	Advanced Tech Support Functions.....	3
CTS 297	Seminar in Computer Information Technology: MCDST Applications Preparation.....	2

Completion Requirements14 Credit Hours

**COMPUTER INFORMATION
TECHNOLOGY:
MICROSOFT OFFICE SPECIALST
(MOS).**

Day and Evening

This certificate offers entry-level courses for individuals planning to use computers to process and manage information. Beginning with the basics, students acquire intermediate and advanced skills using a software package designed for word processing, spreadsheet presentations, and business presentations. A program prerequisite of CIS 110 or CIS 111 is required.

Upon completion, students should be able to integrate data to produce documents using multiple technologies. Students will also gain necessary skills to pursue the Microsoft Office Specialist

(M.O.S.) Proficient Level certification examinations in word processing, spreadsheet, as well as the Expert Level certification examination in presentation software.

**COMPUTER INFORMATION
TECHNOLOGY:
MICROSOFT OFFICE SPECIALIST (MOS)
— C25260A**

CTS 125	Presentation Graphics.....	3
CTS 135	Integrated Software Introduction.....	4
CTS 235	Integrated Software Advanced	4
CTS 293	Seminar in Computer Information Technology: Post- Advanced MOS.....	3

Completion Requirements 14 Credit Hours

**COMPUTER INFORMATION
TECHNOLOGY:
SPREADSHEET MANAGEMENT**

Day and Evening

This certificate provides advanced-level courses for individuals who wish to acquire expert level spreadsheet skills. Topics include: creating professional looking spreadsheets, macro customization techniques, financial calculations, and utilizing advanced spreadsheet features.

Upon completion, students will gain necessary skills to pursue the Microsoft Office Specialist (MOS) certification examinations in Excel at the Core Level and the Expert Level.

**COMPUTER INFORMATION
TECHNOLOGY:
SPREADSHEET MANAGEMENT —
C25260E**

CIS 110	Introduction to Computers.....	3
CTS 130	Spreadsheet	3
CTS 135	Integrated Software Introduction.....	4
CTS 230	Advanced Spreadsheet.....	3

Completion Requirements 13 Credit Hours

**COMPUTER
PROGRAMMING:
C++ PROGRAMMING**

Day and Evening

The C++ Programming certificate offers courses for students interested in upgrading their programming skills by acquiring proficiency in an object-oriented programming language. This program is also appropriate for individuals who are new to programming. Instruction in C++ programming includes object-oriented programming topics (classes, inheritance, and polymorphism) as well as procedural programming topics (data types, control structures, functions, arrays, pointers and strings).

**COMPUTER
PROGRAMMING: C++
PROGRAMMING — C25130C**

CIS 115	Introduction to Programming and Logic.....	3
CSC 134	C++ Programming	3
CSC 141	Visual C++ Programming	3
CSC 234	Advanced C++	3
CSC 291	Selected Topics in Computer Programming: C++ Project.....	1

Completion Requirements13 Credit Hours

**COMPUTER PROGRAMMING:
COMPUTER SCIENCE**

Day and Evening

This certificate is designed for the College/University Transfer student who wishes to acquire a foundation in Computer Science. All course work is approved for transferability to a four-year institution. Students will learn computer architecture topics, object-oriented design analysis, software methodology, introductory programming concepts, algorithm analysis, computer ethics, basic network security, and related mathematical topics including encryption techniques. Proficiency in advanced algebra (MAT 080 or its equivalent) is required to enter this program.

**COMPUTER PROGRAMMING:
COMPUTER SCIENCE – C25130E**

CIS 115	Introduction to Programming and Logic	3
CSC 120	Computing Fundamentals I	4
CSC 130	Computing Fundamentals II	4
CSC 134	C++ Programming	3
or		
CSC 151	JAVA Programming.....	3

Completion Requirements14 Credit Hours

**COMPUTER PROGRAMMING:
JAVA PROGRAMMING**

Day and Evening

This certificate is designed for the student who wishes to acquire programming skills for Internet and Intranet application development. Students will learn to program Internet user interfaces, HTML, C++, JAVA, and other computer languages currently used for Internet and Intranet application and applet development.

**COMPUTER PROGRAMMING:
JAVA PROGRAMMING —C 25130A**

CIS 115	Introduction to Programming and Logic.....	3
CSC 151	JAVA Programming.....	3
CSC 251	Advanced JAVA Programming.....	3
CSC 258	JAVA Enterprise Programs	3
CSC 278	JAVA Message Service	3

Completion Requirements15 Credit Hours

**COMPUTER PROGRAMMING:
VISUAL BASIC PROGRAMMING**

Day and Evening

Designed for individuals interested in acquiring the advanced programming skills necessary to design and implement Visual BASIC programs. The student will learn how to design Visual BASIC programs using event-driven programming techniques, implement current interface design standards, create reusable code, manipulate records in both a file-based system and a database system, and program customization using API calls. Emphasis is placed on proper program design techniques.

**COMPUTER PROGRAMMING: VISUAL
BASIC PROGRAMMING — C25130B**

CIS 115	Introduction to Programming and Logic	3
CSC 139	Visual BASIC Programming.....	3
CSC 239	Advanced Visual BASIC	3
CSC 292	Selected Topics in Computer Programming: Visual Basic Project	2
DBA 110	Database Concepts.....	3
WEB 180	Active Server Pages.....	3

Completion Requirements 17 Credit Hours

**CONSTRUCTION MANAGEMENT
TECHNOLOGY**

Evening Only

The Construction Management Technology Certificate is designed for the individuals that have a background in the construction industry and wish to advance in that industry. Topics include Safety; OSHA Regulations and Compliance; Construction Blueprint Reading; Project Planning and Scheduling; Cost and Production; Human Relations Issues; and Professional Construction Supervision.

Individuals that complete this certificate will have completed an essential step in the process of becoming a construction project manager, superintendent, foreman, or estimator.

**CONSTRUCTION MANAGEMENT
TECHNOLOGY – C35190B**

BPR 130	Blueprint Reading/Construction	2
CMT 210	Professional Construction Supervision	3
CMT 212	Total Safety Performance	3
CMT 214	Planning and Scheduling	3
CMT 216	Costs and Productivity	3
CMT 218	Human Relations Issues.....	3

Completion Requirements..... 17 Credit Hours

CULINARY TECHNOLOGY

Day and Evening

The Culinary Certificate includes basic courses to help prepare students for entry into the culinary field or to advance in their current foodservice jobs.

Courses address both the art and the science of food preparation. Students learn basic sanitation, cooking and baking principles, and garnishing and presentation skills. Modern supervision techniques are also studied and practiced. The majority of class time is devoted to actual hands-on kitchen skill development.

Courses credits are transferable to the Culinary Technology associate degree program.

CULINARY TECHNOLOGY — C55200A

CUL 110	Sanitation and Safety.....	2
CUL 140	Basic Culinary Skills.....	5
CUL 160	Baking I	3
	or	
CUL 170	Garde-Manger I.....	3
CUL 240	Advanced Culinary Skills	5
HRM 145	Hospitality Supervision	3

Completion Requirements18 Credit Hours

CULINARY TECHNOLOGY: BAKING

The Baking certificate includes basic courses to help prepare students for entry into the baking field or to advance in their current food service jobs. Course addresses both the art and the science of baking. Students learn basic sanitation, cooking and baking principles, as well as pastry, confection and production baking skills. The majority of class is devoted to actual hands-on baking skill development.

CULINARY TECHNOLOGY: BAKING — C55200B

BPA 250	Desert and Bread Production.....	5
CUL 110	Sanitation and Safety.....	2
CUL 160	Baking I	3
CUL 260	Baking II	3
CUL 280	Pastries and Confections.....	3

Completion Requirements16 Credit Hours

DATABASE MANAGEMENT: ORACLE DBA PROGRAMMING

Day and Evening

This certificate is designed for the student who wishes to acquire Oracle database theory, SQL programming, database administration fundamentals, and performance tuning techniques. Completion of CIS 115 or its equivalent is required before entering the program.

DATABASE MANAGEMENT: ORACLE DBA PROGRAMMING — C25150B

DBA 120	Database Programming I.....	3
DBA 193	Selected Topics in Database Management: Oracle Optimization	3
DBA 230	Database in Corporate Environments	3
DBA 240	Database Analysis/Design	3
DBA 260	Oracle DBMS Administration.....	3

Completion Requirements 15 Credit Hours

DATABASE MANAGEMENT: ORACLE DEVELOPER

Day and Evening

This certificate is designed for the student who wishes to acquire Oracle 9i database developer skills. Students will learn database theory and the logic necessary to build enterprise-class, scalable database applications. In addition, students will learn to construct sophisticated database forms and to develop logic skills in reports processing. Upon completion, students will be prepared to pursue certification examinations in Oracle Developer Associate and Oracle Developer Professional. Completion of CIS 115 or its equivalent is required before entering this program.

DATABASE MANAGEMENT: ORACLE DEVELOPER – C25150A

DBA 120	Database Programming I.....	3
DBA 192	Selected Topics in Database Management: Oracle Internet Applications.....	1
DBA 220	Oracle DB Programming II.....	3
DBA 240	Database Analysis/Design.....	3
DBA 291	Selected Topics in Database Management: Oracle Project.....	1

Completion Requirements 11 Credit Hours

EARLY CHILDHOOD ASSOCIATE

Evening Only

The Early Childhood certificate prepares individuals to work at entry-level employment in child development centers, nursery schools, camps, and recreation centers. This certificate provides instruction in child development and the behavior patterns of infants through four-year olds. This course work will transfer to the Early Childhood diploma and associate degree.

EARLY CHILDHOOD ASSOCIATE — C55220B

EDU 119	Early Childhood Education.....	4
EDU 144	Child Development I.....	3
EDU 145	Child Development II.....	3
EDU 146	Child Guidance.....	3

Completion Requirements 13 Credit Hours

EARLY CHILDHOOD ASSOCIATE: INFANT/TODDLER CARE

The Infant/Toddler Care certificate provides a strong foundation for Early Childhood Professionals working with very young children. The North Carolina Division of Child Development includes this certificate as one option in obtaining quality points in the revised Star Rated License system.

EARLY CHILDHOOD ASSOCIATE — C55220C

EDU 119	Early Childhood Education	4
EDU 131	Child, Family, and Community	3
EDU 144	Child Development I	3
EDU 153	Health, Safety, and Nutrition.....	3
EDU 234	Infant, Toddlers, and Twos	3

Completion Requirements16 Credit Hours

ELECTRICAL/ELECTRONICS TECHNOLOGY: COMMERCIAL WIRING METHODS

Evening Only

The Commercial Wiring Methods certificate is a continuation of the Residential Wiring Methods certificate and is designed to provide training for persons interested in the installation and maintenance of electrical systems found in commercial facilities.

Training, most of which is hands-on, will include such topics as basic commercial wiring practices, motors and controls, the National Electrical Code, and other subjects as local needs require.

Graduates should qualify for a variety of jobs in the electrical field as an on-the-job trainee or apprentice assisting in the layout, installation, and maintenance of commercial electrical systems.

NOTE: Residential Wiring Methods certificate must be completed before enrolling in the Commercial Wiring Methods program.

ELECTRICAL/ELECTRONICS TECHNOLOGY: COMMERCIAL WIRING METHODS — C35220C

ELC 114a	Basic Wiring II-Part 1	2
ELC 114b	Basic Wiring II-Part 2	2
ELC 117a	Motors and Controls-Part 1	2
ELC 117b	Motors and Controls-Part 2	2
ELC 119	NEC Calculations.....	2
ELC 134	Transformer Applications.....	2

Completion Requirements12 Credit Hours

ELECTRICAL/ELECTRONICS TECHNOLOGY: RESIDENTIAL WIRING METHODS

Evening Only

The Residential Wiring Methods certificate is designed to provide training for persons interested in the installation and maintenance of electrical systems found in residential facilities.

Training, most of which is hands-on, will include such topics as AC/DC theory, basic residential wiring practices, the National Electrical Code, and other subjects as local needs require.

Graduates should qualify for a variety of jobs in the electrical field as an on-the-job trainee or apprentice assisting in the layout, installation, and maintenance of residential electrical systems.

ELECTRICAL/ELECTRONICS TECHNOLOGY: RESIDENTIAL WIRING METHODS — C35220B

ELC 112a	DC/AC Electricity-Part 1	3
ELC 112b	DC/AC Electricity-Part 2	2
ELC 113a	Basic Wiring I-Part 1	2
ELC 113b	Basic Wiring I-Part 2.....	2
ELC 118	National Electrical Code.....	2
ELC 126a	Electrical Computations-Part 1	2
ELC 126b	Electrical Computations-Part 2	1

Completion Requirements 14 Credit Hours

ELECTRONICS ENGINEERING TECHNOLOGY: BASIC ELECTRONICS

The Basic Electronics certificate provides the student with a program of study necessary for developing basic electronic skills. The student will gain an understanding of AC/DC basic circuits, digital circuits, and basic electronic devices. Courses are an adjunct of the Electronics Engineering Technology program and may be transferred directly toward completion of the A.A.S. degree in Electronics Engineering Technology.

ELECTRONICS ENGINEERING TECHNOLOGY: BASIC ELECTRONICS — C40200A

CIS 111	Basic PC Literacy*.....	2
ELC 131	DC/AC Circuit Analysis	5
ELN 131	Electronics Devices	4
ELN 133	Digital Electronics.....	4
MAT 121	Algebra and Trigonometry	3

Completion Requirements 18 Credit Hours

*CIS 110: Introduction to Computers or NOS 110: Operating System Concepts can substitute for CIS 111.

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY: FUEL INJECTION, ELECTRICAL, AND ELECTRONICS

Evening Only

The Fuel Injection, Electrical, and Electronics certificate curriculum is under Heavy Equipment and Transport Technology/Construction Equipment Systems. This certificate curriculum is designed to provide individuals with the knowledge and skills needed to troubleshoot and repair fuel injection, electrical, and electronic systems in construction equipment. Construction equipment includes dozers, scrapers, loaders, and forklifts.

The core course work includes the theory of operations, troubleshooting techniques, and repair procedures for electrical and electronic systems. The concentration courses will also include fuel injection systems.

Graduates of the curriculum should qualify for entry-level employment opportunities at businesses, which repair construction equipment. Entry and advancement levels depend on the amount of training completed, knowledge and ability levels, work performance, and ethics.

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY: FUEL INJECTION, ELECTRICAL, AND ELECTRONICS — C6024BC

HET 112	Diesel Electrical System	5
HET 134	Mechanical Fuel Injection	3

Major Electives

Select 4 hours from the following courses

ELN 112	Diesel Electronics System	4
ELN 113	Electronic Fuel Injection	2
HET 115	Electronic Engines	3
HET 128	Medium/Heavy Duty Tune-up	2
HET 192	Selected Topics in Heavy Equipment and Transport Technology	2

Completion Requirements12 Credit Hours

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY: HYDRAULICS, ENGINES, AND TRANSMISSIONS

Evening Only

The Hydraulics, Engines, and Transmissions certificate is under the Heavy Equipment and Transport Technology/ Construction Equipment Systems curriculum. This certificate is designed to provide individuals with the knowledge and skills needed to troubleshoot and repair hydraulics, engines, and transmissions in construction equipment.

The core course work includes the theory of operations, troubleshooting techniques, and repair procedures for engines and hydraulics systems. The concentration courses will also include transmissions.

Graduates of the curriculum should qualify for entry-level employment opportunities at businesses, which repair construction equipment. Entry and advancement levels depend on the amount of training completed, knowledge and ability levels, work performance, and ethics.

HEAVY EQUIPMENT AND TRANSPORT TECHNOLOGY: HYDRAULICS, ENGINES, AND TRANSMISSIONS — C6024BB

HET 110a	Diesel Engines-Part 1	4
HET 110b	Diesel Engines-Part 2	2
HET 114	Power Trains	5

HYD 111	Mobile Hydraulic Systems	3
or		
HYD 112	Hydraulic/Pneumatics II	2

Completion Requirements 13 Credit Hours

HIGH PERFORMANCE COMPUTING: BIOINFORMATICS COMPUTING

Day And Evening

Bioinformatics is the field of science in which biology and information technology merge into a single discipline. The study of Bioinformatics combines the basic knowledge of Biology with the computer skills necessary to manage the data generated by biological researchers. Topics include the development and application of computer methods for management, analysis, interpretation and predictions of biological databases. Students will use software tools for database creation, data warehousing, data mining and analysis. Bioinformatics as a field of study is becoming increasingly important due to the interest of the pharmaceutical industry in genome sequencing projects. The certificate focus will be on the database related IT skills necessary for a bioinformatics student.

Prerequisites to enter the program include biology course work at the post-secondary level or the permission of the department.

HIGH PERFORMANCE COMPUTING: BIOINFORMATICS COMPUTING- C25230B

HPC 154	Introduction to Bioinformatics Computing	3
HPC 170	Introduction to HPC Data Mining	3
HPC 293	Selected Topics: Bioinformatics Capstone	3
NOS 120	Linux/UNIX Single User	3
WEB 183	Perl Programming	3

Completion Requirements 15 Credit Hours

HIGH PERFORMANCE COMPUTING: LINUX/RED HAT ADMINISTRATION

Day and Evening

This certificate is designed to prepare students for the Red Hat Certified Engineer (RHCE) examination. Topics include network installation, Red Hat Linux file system and kernel concepts, scripts, system recovery, cron system, LILO configuration, implement configure, log and restrict various Red Hat network services, configuration issues associated with using Red Hat Linux as a router, basic firewall policies, and basics of the XWindow system. Upon completion of the four-course sequence, students will have the expertise needed to pass the test required to achieve RHCE status. Completion of NET 110 or CIS 282 or the equivalent is required to begin this program.

**HIGH PERFORMANCE COMPUTING:
LINUX/RED HAT
ADMINISTRATION — C25230C**

NOS 120	Linux/UNIX Single User.....	3
NOS 220	Linux/UNIX Administration I.....	3
NOS 221	Linux/UNIX Administration II.....	3
NOS 222	Linux/UNIX Administration III.....	3

Completion Requirements12 Credit Hours

**HOTEL AND
RESTAURANT MANAGEMENT:
HOTEL MANAGEMENT**

The Hotel Management certificate prepares students to understand and apply the administrative and practical skills needed for supervisory and managerial positions in hotels, motels, resorts, inns, and clubs. Course work includes front office management, meetings and conventions, guest services, sanitation, quality management, and other areas critical to the success of hospitality professionals. Upon completion graduates should qualify for supervisory or entry-level management positions in lodging including, front office, and reservations. Opportunities are also available in the support areas of food and equipment sales

**HOTEL AND RESTAURANT
MANAGEMENT: HOTEL MANAGEMENT
— C25240A**

ACC 175	Hotel and Restaurant Accounting.....	4
CUL 110	Sanitation and Safety.....	2
HRM 110	Introduction to Hospitality.....	2
HRM 120	Front Office Procedures.....	3
HRM 145	Hospitality Supervision.....	3
HRM 210	Meetings and Conventions.....	3

Completion Requirements17 Credit Hours

**HOTEL AND
RESTAURANT MANAGEMENT:
RESTAURANT MANAGEMENT**

The Restaurant Management certificate prepares students to understand and apply the administrative and practical skills needed for supervisory and managerial positions in restaurants, institutions, and clubs. Course work includes guest services, sanitation, quality management, accounting, and other areas critical to the success of restaurant professionals. Upon completion graduates should qualify for supervisory or entry-level management positions in restaurant, club or resort supervision. Opportunities are also available in the support areas of food and equipment sales.

**HOTEL AND RESTAURANT
MANAGEMENT: RESTAURANT
MANAGEMENT — C25240B**

ACC 175	Hotel and Restaurant Accounting.....	4
CUL 110	Sanitation and Safety.....	2
CUL 135	Food and Beverage Service.....	2
CUL 135A	Food and Beverage Service Lab.....	1
HRM 110	Introduction to Hospitality.....	2
HRM 215	Restaurant Management.....	3

HRM 220	Food and Beverage Controls.....	3
HRM 220A	Food and Beverage Controls Lab.....	1

Completion Requirements..... 18 Credit Hours

**HUMAN SERVICES TECHNOLOGY/
SUBSTANCE ABUSE**

The Human Services Technology/Substance Abuse Certificate is designed to appeal to currently employed human service professionals who are interested in gaining specialized training in the substance abuse field. It is expected that these professionals will have appropriate training in basic psychology and/or counseling principles. The certificate program can be completed in three semesters and will provide the training hours needed to meet the North Carolina Substance Abuse Counselor Certification Board requirements.

**HUMAN SERVICES TECHNOLOGY/
SUBSTANCE ABUSE — C4538EA**

SAB 110	Substance Abuse Overview.....	3
SAB 120	Intake and Assessment.....	3
SAB 135	Addictive Process.....	3
SAB 210	Substance Abuse Counseling.....	3
SAB 240	Substance Abuse Issues.....	3

Completion Requirements.....15 Credit Hours

**INDUSTRIAL ENGINEERING
TECHNOLOGY:
ADVANCED QUALITY
ASSURANCE**

**INDUSTRIAL ENGINEERING
TECHNOLOGY:
ADVANCED QUALITY ASSURANCE—
C40240C**

ISC 132	Manufacturing Quality Control.....	3
ISC 237	Quality Management.....	3
ISC 277	Quality Technology.....	4
ISC 280	Validation Fundamentals.....	2

Completion Requirements..... 12 Credit Hours

**INDUSTRIAL ENGINEERING
TECHNOLOGY:
INDUSTRIAL MANAGEMENT
*Evening Only***

The Industrial Management certificate curriculum provides the student with a progressive study program that will support the development of basic technical skills and knowledge necessary for success in the industrial/manufacturing environment. There are no prerequisites required for entering this certificate program. The course requirements are self-contained for providing the necessary basic math and manufacturing processes introduction. The core of the program is designed to provide the skills and knowledge needed to understand and perform various job functions in the industrial/manufacturing setting.

These courses are currently a part of the Industrial and Manufacturing Engineering Technology curricula and can be transferred directly into the Associate in Applied Science Degree for either curriculum.

INDUSTRIAL ENGINEERING TECHNOLOGY: INDUSTRIAL MANAGEMENT — C40240A

EGR 130	Engineering Cost Control	3
ISC 112	Industrial Safety	2
ISC 128	Industrial Leadership	2
ISC 243	Production and Operations Management I	3
ISC 132	Manufacturing Quality Control	3
MAT 121	Algebra and Trigonometry	3

Completion Requirements16 Credit Hours

INDUSTRIAL ENGINEERING TECHNOLOGY: QUALITY ASSURANCE

INDUSTRIAL ENGINEERING TECHNOLOGY: QUALITY ASSURANCE— C40240B

DFT 111	Technical Drafting I	2
DFT 121	Introduction to GD and T	2
ISC 132	Manufacturing Quality Control	3
ISC 175	QA Fundamentals	1
ISC 278	cGMP Quality System	2
MAC 114	Introduction to Metrology	2

Completion Requirements12 Credit Hours

INDUSTRIAL SYSTEMS TECHNOLOGY

Day and Evening

The Industrial Systems Technology certificate is designed to prepare or upgrade individuals to safely service, maintain, repair, or install equipment. Instruction includes theory and skill training needed for inspecting, testing, troubleshooting, and diagnosing industrial systems.

Students will learn multi-craft technical skills in blueprint reading, mechanical systems maintenance, electricity, hydraulics/pneumatics, welding, machining or fabrication, and includes various diagnostic and repair procedures. Practical application in these industrial systems will be emphasized and additional advanced course work may be offered.

Upon completion of this curriculum, graduates should be able to individually, or with a team, safely install, inspect, diagnose, repair, and maintain industrial process and support equipment. Students will also be encouraged to develop their skills as life-long learners.

INDUSTRIAL SYSTEMS TECHNOLOGY — C50240B

ELC 112	DC/AC Electricity	5
ELC 117	Motors and Controls	4
HYD 110	Hydraulics/Pneumatics I	3
ISC 110	Workplace Safety	1
MEC 131	Metalworking Processes	3
WLD 112	Basic Welding Processes	2

Completion Requirements 18 Credit Hours

INFORMATION SYSTEMS SECURITY

Day and Evening

INFORMATION SYSTEMS SECURITY — C25270A

NET 125	Networking Basics	3
SEC 110	Security Concepts	3
SEC 150	Secure Communications	3
SEC 160	Secure Administration I	3
SEC 210	Intrusion Detection	3
SEC 220	Defense-in-Depth	3

Completion Requirements 18 Credit Hours

LANDSCAPE ARCHITECTURE TECHNOLOGY

LANDSCAPE ARCHITECTURE TECHNOLOGY — C40260A

ARC 114	Architecture CAD	2
LAR 111	Introduction to Landscape Architecture Technology	3
LAR 112	Landscape Materials and Methods	4
LAR 113	Residential Landscape Design	3
LAR 230	Principles of Horticulture I	4

Completion Requirements16 Credit Hours

MACHINING TECHNOLOGY

Evening Only

The Machining Technology certificate is designed to develop basic skills in the theory and safe use of hand tools, power machinery, computerized equipment, and precision inspection instruments.

Students will learn to interpret blueprints, set up manual and CNC machines, perform basic machining operations, and make decisions to insure that work quality is maintained.

Employment opportunities exist in manufacturing industries, public institutions, governmental agencies, and in a wide range of specialty machining job shops.

MACHINING TECHNOLOGY — C50300B

BPR 111	Blueprint Reading	2
MAC 111a	Machining Technology I-Part 1.....	3
MAC 111b	Machining Technology I-Part 2.....	3
MAC 121	Introduction to CNC	2
MAC 151	Machining Calculations.....	2
MAC 229	CNC Programming	2

Completion Requirements 14 Credit Hours

MACHINING TECHNOLOGY: CNC MACHINING

The CNC Machining Certificate is designed to develop skills in the setup and programming of CNC machines, including 2-axis conversational programmed mills, 3 and 4-axis mills and machining centers, and CNC lathes. The prospective student should have some prior machining experience or training upon entering this program.

Students will learn to program using G-code text programming, CAD/CAM software, and on-board programming systems at the machine controls. Use of tool setting gages and electronic probes are also covered.

Employment opportunities exist in manufacturing industries, public institutions, governmental agencies, and in a wide range of specialty machining job shops.

MACHINING TECHNOLOGY: CNC MACHINING – C50300C

MAC 121	Introduction to CNC	2
MAC 122	CNC Turning	2
MAC 124	CNC Milling.....	2
MAC 229	CNC Programming	2
MAC 231	CNC Graphics Programming: Turning	3
MAC 232	CNC Graphics Programming: Milling.....	3

Completion Requirements 14 Credit Hours

MACHINING TECHNOLOGY/ TOOL, DIE, AND MOLD MAKING: MOLD MAKING

Evening Only

This certificate is designed for graduates of a Machining Technology curriculum or persons with machine trade work experience. Courses selected from the Tool, Die, and Mold Making Associate Degree concentration introduce the students to plastics and plastics manufacturing equipment, moldmaking equipment, and moldmaking techniques.

Students will receive some hands-on lab experience in testing, identifying, and machining plastics. They will work on mold design and toolmaking practices related to molds. They will receive instruction on computerized machining theory and practice, including some programming and complex machining.

Employment opportunities exist in plastics manufacturing industries, molding job shops (who run molds belonging to other manufacturers), and moldmaking or mold repair job shops.

MACHINING TECHNOLOGY/TOOL, DIE, AND MOLD MAKING: MOLD MAKING — C5030AA

MAC 121	Introduction to CNC.....	2
MAC 124	CNC Milling.....	2
MAC 245	Mold Construction I	4
MAC 246	Mold Construction II	4

Completion Requirements 12 Credit Hours

MAGNETIC RESONANCE IMAGING TECHNOLOGY

The Magnetic Resonance Imaging Technology Certificate, a specialty for radiographers, prepares the individual to use specialized equipment to visualize cross-sectional anatomical structures and aid physicians in the demonstration of pathologies and disease processes. *Individuals entering this certificate program must be registered or registry-eligible radiologic technologists by the American Registry of Radiologic Technologists.*

Course work prepares the technologist to provide patient care and perform studies utilizing imaging equipment, professional communication, and quality assurance in scheduled and emergency procedures through academic and clinical studies.

Graduates may be eligible to sit for the American Registry of Radiologic Technologists Advanced-Level testing in the Magnetic Resonance Imaging examination. They may find employment in facilities, which perform these imaging procedures. MRI 225, MRI Clinical Practicum, is a required pre- or co-requisite for this certificate and is strongly suggested to sit for the ARRT Advanced Registry for MRI.

MAGNETIC RESONANCE IMAGING TECHNOLOGY — D45200B

MRI 210	MRI Physics and Equipment	3
MRI 211	MRI Procedures	4
MRI 231	MRI Clinical Practicum	11

Completion Requirements 18 Credit Hours

MANUFACTURING TECHNOLOGY/PLASTICS: ENGINEERING MATERIALS †

MANUFACTURING TECHNOLOGY/PLASTICS: ENGINEERING MATERIALS — C5032AH

MEC 180	Engineering Materials	3
PLA 115	Polymer Processing.....	3
PLA 215	Polymeric Materials	3
PLA 220	Moldflow.....	3

Completion Requirements 12 Credit Hours

MANUFACTURING TECHNOLOGY/PLASTICS: MANUFACTURING PRACTICES †

The Manufacturing Practices certificate offers six of the basic courses needed for a Manufacturing Technology A.A.S. degree. The student will learn the basic manufacturing technologies including robotics, hydraulics, safety, management, and quality control. These courses are an adjunct of the Manufacturing Technology/Plastics program and can be transferred directly into the Associate in Applied Science degree for these curricula. This certificate together with the Plastics Materials certificate, the Plastics Extrusion certificate, and the Injection Molding certificate are cumulative towards the Manufacturing Technology/Plastics A.A.S. degree and diploma.

MANUFACTURING TECHNOLOGY/PLASTICS: MANUFACTURING PRACTICES — C5032AG

HYD 110	Hydraulics/Pneumatics I.....	3
ISC 112	Industrial Safety.....	2
ISC 128	Industrial Leadership.....	2
ISC 132	Manufacturing Quality Control.....	3
MEC 161	Manufacturing Processes I.....	3
MEC 161A	Manufacturing Processes I Lab.....	1

Completion Requirements14 Credit Hours

MANUFACTURING TECHNOLOGY/PLASTICS: PLASTICS EXTRUSION †

The Plastics Extrusion certificate offers courses concentrating on the extrusion process coupled with basic material science aspects of commonly used polymers. The student will gain practical experience in troubleshooting the extrusion process including material characteristic differences, screw design, die design, down steam equipment, etc. Extrusion processes of wire and cable, tubing/pipe, sheet, fiber, and blown film are studied in depth. Quality control aspects such as Statistical Process Control (SPC) and Design of Experiments (DOE) are also covered. This certificate together with the Plastics Materials certificate, the Injection Molding certificate, and the Manufacturing Practices certificate are cumulative towards the A.A.S. degree and diploma.

MANUFACTURING TECHNOLOGY/PLASTICS: PLASTICS EXTRUSION — C5032AC

ISC 132	Manufacturing Quality Control.....	3
PLA 115	Polymer Processing.....	3
PLA 215	Polymeric Materials.....	3
PLA 225	Extrusion.....	3

Completion Requirements12 Credit Hours

MANUFACTURING TECHNOLOGY/PLASTICS: PLASTICS INJECTION MOLDING †

The Plastics Injection Molding certificate offers courses concentrating on the injection molding process, including mold flow computer analysis of the injection molding process. The student will gain practical experience in troubleshooting the injection molding process including machine start up and shut down, mold set up and tear down, material changeovers, mold filling problems, cycle time optimization, etc. These courses and this certificate are an adjunct of the Manufacturing Technology/Plastics program and can be transferred directly into the Associate in Applied Science degree and diploma.

MANUFACTURING TECHNOLOGY/PLASTICS: PLASTICS INJECTION MOLDING — C5032AF

PLA 120	Injection Molding.....	3
PLA 210	Mold Maintenance/Design.....	3
PLA 215	Polymeric Materials.....	3
PLA 220	Moldflow.....	3
PLA 230	Advanced Plastics Manufacturing.....	4

Completion Requirements..... 16 Credit Hours

MANUFACTURING TECHNOLOGY/PLASTICS: PLASTICS MATERIALS †

The Plastics Materials certificate offers courses for students interested in the properties of plastics materials, both thermoplastic and thermoset. The student will learn the basics of material properties and testing methods. These courses and this certificate are an adjunct of the Manufacturing Technology/Plastics program and are an excellent start for the student who wishes to build towards their A.A.S. Degree or Diploma.

This certificate together with the Plastics Extrusion certificate, the Injection Molding certificate, and the Manufacturing Technology certificate are cumulative towards the A.A.S. degree and diploma.

MANUFACTURING TECHNOLOGY/PLASTICS: PLASTICS MATERIALS — C5032AH

CHM 131	Introduction to Chemistry.....	3
CHM 131A	Introduction to Chemistry Lab.....	1
MEC 180	Engineering Materials.....	3
PLA 115	Polymer Processing.....	3
PLA 215	Polymeric Materials.....	3
PLA 220	Moldflow.....	3

Completion Requirements..... 16 Credit Hours

MECHANICAL DRAFTING TECHNOLOGY

The Mechanical Drafting Technology certificate curriculum prepares technicians to produce drawings of mechanical parts and components of mechanical systems. CAD and the importance of technically correct drawings and designs based on current standards are emphasized.

Course work includes mechanical drafting, CAD, and proper drawing documentation. The use of proper dimensioning and tolerance techniques is stressed.

Graduates should qualify for employment in mechanical areas such as manufacturing, fabrication, research and development, and service industries requiring entry-level drafting and CAD skills.

MECHANICAL DRAFTING TECHNOLOGY — C50340B

DFT 111	Technical Drafting I	2
DFT 111A	Technical Drafting I Lab	1
DFT 151	CAD I	3
DFT 152	CAD II	3
DFT 153	CAD III	3

Completion Requirements12 Credit Hours

MECHANICAL ENGINEERING TECHNOLOGY: MECHANICAL DESIGN

MECHANICAL ENGINEERING TECHNOLOGY: MECHANICAL DESIGN — C40320B

DFT 111	Technical Drafting I	2
DFT 151	CAD I	3
DFT 152	CAD II	3
or		
DFT 170	Engineering Graphics	3
DFT 153	CAD III	3

Completion Requirements14 Credit Hours

MECHANICAL ENGINEERING TECHNOLOGY: THERMAL MECHANICS

MECHANICAL ENGINEERING TECHNOLOGY: THERMAL MECHANICS — C40320C

DFT 152	CAD II	3
or		
DFT 170	Engineering Graphics	3
MEC 180	Engineering Materials	3
MEC 265	Fluid Mechanics	3
MEC 267	Thermal Mechanics	3

Completion Requirements12 Credit Hours

MEDICAL OFFICE ADMINISTRATION:

MEDICAL BILLING AND CODING

The Medical Billing and Coding certificate prepares individuals for entry-level positions in medical and allied health facilities. Careers include patient services representative, medical records clerk, claims clerk, and referral clerk. Course work focuses on medical terminology, patient and insurance billing, and diagnostic and procedural coding.

Employment opportunities include the offices of allied health facilities, HMOs, insurance claims processors, laboratories, and medical equipment manufacturers and suppliers.

MEDICAL OFFICE ADMINISTRATION: MEDICAL BILLING AND CODING — C25310B

OST 141	Medical Terms I – Medical Office	3
OST 142	Medical Terms II – Medical Office	3
OST 148	Medical Coding, Billing, and Insurance	3
OST 149	Medical Legal Issues	3
OST 198	Seminar in Patient Management Systems	2
OST 247	CPT Coding in the Medical Office	2
OST 248	Diagnostic Coding	2

Completion Requirements18 Credit Hours

MEDICAL OFFICE ADMINISTRATION:

MEDICAL OFFICE SPECIALIST

The Medical Office Specialist certificate prepares individuals for entry-level positions in medical and allied health facilities. Careers include patient services representative, medical records clerk, claims clerk, and referral clerk. Course work focuses on medical terminology, computer software, and records management. Employment opportunities include the offices of allied health facilities, HMOs, insurance claims processors, laboratories, and medical equipment manufacturers and suppliers.

MEDICAL OFFICE ADMINISTRATION: MEDICAL OFFICE SPECIALIST — C25310A

CIS 111	Basic PC Literacy	2
OST 136	Word Processing	2
OST 141	Medical Terms I – Medical Office	3
OST 142	Medical Terms II – Medical Office	3
OST 164	Text Editing Applications	3
OST 184	Records Management	2
OST 188	Issues in Office Technology	2

Completion Requirements17 Credit Hours

MEDICAL OFFICE ADMINISTRATION: MEDICAL TRANSCRIPTION SPECIALIST

The Medical Transcription Specialist certificate prepares individuals for entry-level positions in medical and allied health facilities. Careers include patient services representative, medical records clerk, claims clerk, and referral clerk. Employment opportunities include the offices of allied health facilities, HMOs, insurance claims processors, laboratories, and medical equipment manufacturers and suppliers.

MEDICAL OFFICE ADMINISTRATION: MEDICAL OFFICE SPECIALIST — C25310C

OST 134	Text Entry and Formatting.....	3
OST 141	Medical Terms I – Medical Office.....	3
OST 142	Medical Terms II – Medical Office.....	3
OST 164	Text Editing Applications.....	3
OST 241	Medical Office Transcription I.....	2
OST 242	Medical Office Transcription.....	2

Completion Requirements 16 Credit Hours

NETWORKING TECHNOLOGY: CISCO CERTIFIED NETWORK ASSOCIATE (CCNA)

This certificate is designed to prepare students for the CISCO Certified Network Associate (CCNA) examination. Topics include network topologies and design, router configuration and protocols, switching theory, virtual LANS and threaded case studies.

Upon completion of the four-course sequence, students will have the expertise they need to pass the test required to achieve CCNA status. Completion of NET 110 or CIS 282 or its equivalent is required to begin this program.

NETWORKING TECHNOLOGY: CISCO CERTIFIED NETWORK ASSOCIATE (CCNA) — C25340C

NET 125	Routing and Switching I.....	3
NET 126	Routing and Switching II.....	3
NET 225	Advanced Router and Switching I*.....	3
NET 226	Advanced Router and Switching II*.....	3

Completion Requirements12 Credit Hours

* TNE 111 can be substituted for NET 225 and TNE 121 can be substituted for NET 226.

NETWORKING TECHNOLOGY: CISCO CERTIFIED NETWORK PROFESSIONAL (CCNP)

The CISCO Certified Network Professional (CCNP) certificate provides the student with advanced skills in LAN/WAN networking technologies with an emphasis on CISCO methodology. These

courses will provide an in-depth study of theory, as well as practical hands-on lab activities to prepare the student for the CCNP certification objectives. Topics include routing protocols, switching technology, remote access setup and maintenance, building multi-layer networks, and networking troubleshooting.

NETWORKING TECHNOLOGY: CCNP — C25340I

NET 270	Scalable Networks Design.....	3
NET 271	Multi-Layer Networks.....	3
NET 272	Remote Access Networks.....	3
NET 273	Internetworking Support.....	3

Completion Requirements.....12 Credit Hours

NETWORKING TECHNOLOGY: MICROSOFT CERTIFIED SYSTEMS ENGINEER (MCSE)

The MCSE certificate provides the student with the knowledge and skills necessary to prepare for the Microsoft Certified Systems Engineer (MCSE) examinations. Topics include: analysis of business requirements for a system architecture, design solutions, deploy, install and configure architecture components, and troubleshoot system problems. Completion of NET 110 or its equivalent is required to begin this program.

NETWORKING TECHNOLOGY: MICROSOFT CERTIFIED SYSTEMS ENGINEER (MCSE) — C25340A

NET 198	Seminar in Networking Technology: MCSE.....	3
NOS 230	Windows Administration I.....	3
NOS 231	Windows Administration II.....	3
NOS 232	Windows Administration III.....	3

Completion Requirements 12 Credit Hours

NURSING ASSISTANT *Day Only*

Curriculum prepares individuals to work under the supervision of licensed health care professionals in performing nursing care and services for persons of all ages.

Course work emphasizes growth and development throughout the life span, personal care, vital signs, communication, nutrition, medical asepsis, therapeutic activities, accident and fire safety, household environment and equipment management; family resources and services; and employment skills.

Graduates of this curriculum may be eligible to be listed on the registry as a Nursing Assistant I and Nursing Assistant II. They may be employed in home health agencies, hospitals, clinics, nursing homes, extended care facilities, and doctor's offices.

NURSING ASSISTANT — C45480

Major Courses

NAS 101	Nursing Assistant I.....	5
NAS 102	Nursing Assistant II.....	6
NAS 103	Home Health Care.....	2

Completion Requirements..... 13 Credit Hours

**OFFICE SYSTEMS TECHNOLOGY:
INTEGRATED OFFICE SYSTEMS**

Day and Evening

**OFFICE SYSTEMS TECHNOLOGY:
INTEGRATED OFFICE SYSTEMS —
C25360D**

CIS 111	Basic PC Literacy.....	2
OST 136	Word Processing.....	2
OST 137	Office Software Applications.....	2
OST 138	Advanced Software Applications.....	3
OST 233	Office Publications Design.....	3
OST 236	Advanced Word/Information Processing	3
OST 284	Emerging Technologies.....	2

Completion Requirements17 Credit Hours

**OFFICE SYSTEMS TECHNOLOGY:
OFFICE PUBLICATIONS
CERTIFICATE**

Day and Evening

**OFFICE SYSTEMS TECHNOLOGY:
OFFICE PUBLICATIONS
CERTIFICATE — C25360E**

OST 134	Text Entry and Formatting.....	3
OST 136	Word Processing.....	2
OST 137	Office Software Applications.....	2
OST 164	Text Editing Applications	3
OST 233	Office Publications Design.....	3
OST 236	Advanced Word/Information Processing	3

Completion Requirements16 Credit Hours

**OFFICE SYSTEMS TECHNOLOGY:
OFFICE SPECIALIST I**

Day and Evening

**OFFICE SYSTEMS TECHNOLOGY:
OFFICE SPECIALIST I — C25360F**

OST 122	Office Computations	2
OST 134	Text Entry and Formatting	3
OST 137	Office Software and Applications	2
OST 184	Records Management	2
OST 136	Word Processing.....	2
OST 164	Text Editing Applications	3
OST 188	Issues in Office Technology	2

Completion Requirements16 Credit Hours

**OFFICE SYSTEMS TECHNOLOGY:
OFFICE SPECIALIST II**

Day and Evening

**OFFICE SYSTEMS TECHNOLOGY:
OFFICE SPECIALIST II — C25360C**

CIS 111	Basic PC Literacy	2
OST 135	Advanced Text Entry and Formatting.....	4
OST 181	Introduction to Office Systems.....	3
OST 236	Advanced Word/Information Processing.....	3
OST 284	Emerging Technologies	2
OST 298	Seminar in Office Financial Software	3

Completion Requirements 17 Credit Hours

**OFFICE SYSTEMS
TECHNOLOGY:
WORD PROCESSING**

Day and Evening

The Word Processing certificate program is designed for persons interested in acquiring knowledge and skills in word processing. This intense, concentrated program prepares participants for positions requiring expert skills using state-of-the-art word processing software applications.

**OFFICE SYSTEMS
TECHNOLOGY: WORD
PROCESSING — C25360B**

CIS 111	Basic PC Literacy	2
CIS 169	Business Presentations	2
OST 136	Word Processing.....	2
OST 164	Text Editing Applications.....	3
OST 233	Office Publications Design	3
OST 236	Advanced Word/Information Processing.....	3

Completion Requirements 15 Credit Hours

OFFICE SYSTEMS TECHNOLOGY/LEGAL

Day and Evening

The Office Systems Technology/Legal certificate prepares individuals for entry-level positions in legal or government-related offices and provides professional development for the currently employed.

Course work includes terminology, operational procedures, preparation and transcription of documents, and records management in the legal office context.

OFFICE SYSTEMS TECHNOLOGY/LEGAL—C2536AA

OST 134	Text Entry and Formatting	3
OST 136	Word Processing	2
OST 155	Legal Terminology	3
OST 156	Legal Office Procedures	3
OST 184	Records Management	2
OST 252	Legal Transcription I	3

Completion Requirements16 Credit Hours

PHLEBOTOMY

Day Only

The Phlebotomy curriculum prepares individuals to obtain blood and other specimens for the purpose of laboratory analysis.

Course work includes proper specimen collection and handling, communication skills, and maintaining patient data.

Graduates may qualify for employment in hospitals, clinics, physicians' offices, and other health care settings and may be eligible for national certification as phlebotomy technicians.

The Phlebotomy program is provided by a consortium of Wake Technical Community College and Durham Technical Community College. The program will be one semester long and will alternate having class on each campus.

PHLEBOTOMY — C45600

Major Courses

PBT 100	Phlebotomy Technology	6
PBT 101	Phlebotomy Practicum	3
PSY 118	Interpersonal Psychology	3

Completion Requirements12 Credit Hours

PLUMBING APPLICATIONS AND DIAGRAMS

Day Only

The Plumbing certificate curriculum is designed to give individuals the opportunity to acquire basic skills to assist with the installation and repairs of plumbing systems in residential and small buildings.

Course work includes interpretation of blueprints and practices in plumbing assembly. Students will be introduced to State Codes and requirements.

Graduates should qualify for entry-level employment at parts supply houses, maintenance companies, and plumbing contractors to assist with various plumbing applications.

PLUMBING APPLICATIONS AND DIAGRAMS — C35300A

PLU 120	Plumbing Applications	9
PLU 140	Introduction to Plumbing Codes	2
PLU 192	Selected Topics in Plumbing	2
WLD 112	Basic Welding Processes	2

Completion Requirements 15 Credit Hours

PLUMBING: MODERN PLUMBING CODES AND BLUEPRINT READING

Day Only

The Plumbing certificate curriculum is designed to give individuals the opportunity to acquire basic skills to assist with the installation and repairs of plumbing systems in residential and small buildings.

Course work includes sketching diagrams, interpretation of blueprints, and practices in plumbing assembly. Students will gain additional knowledge of State Codes and requirements.

Graduates should qualify for employment at parts supply houses, and for entry-level positions with maintenance companies and plumbing contractors to assist with various plumbing applications.

PLUMBING: MODERN PLUMBING, CODES, AND BLUEPRINT READING — C35300B

BPR 130	Blueprint Reading/Construction	2
PHY 121	Applied Physics I	4
PLU 110	Modern Plumbing	9
PLU 150	Plumbing Diagrams	2

Completion Requirements 17 Credit Hours

REAL ESTATE

Day and Evening

The Real Estate curriculum provides the precicensing education required by the North Carolina Real Estate Commission, prepares individuals to enter the profession, and offers additional education to meet professional development needs.

Course work includes the practices and principles of real estate, emphasizing financial and legal applications, property development, and property values.

Graduates should qualify for North Carolina Real Estate Sales and Broker examinations. They should be able to enter apprenticeship training and to provide real estate services to consumers in a competent manner.

REAL ESTATE — C25400A

BUS 121	Business Math	3
RLS 112	Real Estate Fundamentals	5
RLS 117	Real Estate Broker.....	4

Completion Requirements12 Credit Hours

REAL ESTATE APPRAISAL

Day and Evening

The Real Estate Appraisal curriculum is designed to prepare individuals to enter the appraisal profession as a registered trainee and advance to licensed or certified appraiser levels.

Course work includes appraisal theory and concepts with applications, the North Carolina Appraisers Act, North Carolina Appraisal Board rules, and the Uniform Standards of Professional Appraisal Practice.

Graduates should be prepared to complete the North Carolina Registered Trainee Examinations and advance to licensure or certification levels as requirements are met.

REAL ESTATE APPRAISAL — C25420A

REA 111	Introduction to Real Estate Appraisal R-1.....	2
REA 112	Valuation Principles and Practices R-2.....	2
REA 113	Applied Residential Property Valuation R-3.....	1
REA 114	USPAP R-4	1
REA 210	Introduction to Income Property Appraisal G-1	2
REA 212	Advanced Income Capital Procedures G-2	2
REA 213	Applied Income Property Valuation G-3.....	2

Completion Requirements12 Credit Hours

SURVEYING TECHNOLOGY: SURVEYING

SURVEYING TECHNOLOGY: SURVEYING — C40380A

EGR 115	Introduction to Technology*.....	3
GIS 112	Introduction to GPS	3
SRV 110	Surveying I	4
SRV 111	Surveying II	4

Completion Requirements14 Credit Hours

* ARC 114 or DFT 111 can be substituted for EGR 115.

WEB TECHNOLOGIES: E-COMMERCE PROGRAMMING

Day and Online

WEB TECHNOLOGIES: E-COMMERCE PROGRAMMING — C25290B

WEB 115	Web Markup and Scripting.....	3
WEB 180	Active Server Pages.....	3
WEB 198	Seminar in Web Technologies: Microsoft FrontPage ..	3
WEB 250	Database-Driven Websites	3
WEB 260	E-Commerce Infrastructure.....	3

Completion Requirements15 Credit Hours

WEB TECHNOLOGIES: WEB DESIGNER

Day and Online

WEB TECHNOLOGIES: WEB DESIGNER —C25290C

WEB 111	Introduction to Web Graphics	3
WEB 120	Introduction to Internet Multimedia	3
WEB 140	Web Development Tools.....	3
WEB 210	Web Design	3
WEB 211	Advanced Web Graphics	3

Completion Requirements15 Credit Hours

WEB TECHNOLOGIES: WEB DEVELOPER

Day and Online

WEB TECHNOLOGIES: WEB DEVELOPER —C25290A

WEB 110	Internet/Web Fundamentals	3
WEB 115	Web Markup and Scripting.....	3
WEB 186	XML Technology	3
WEB 198	Seminar in Internet Technologies: Microsoft FrontPage	3
WEB 230	Implementing Web Servers	3

Completion Requirements15 Credit Hours

WELDING TECHNOLOGY

Evening Only

The Welding Technology certificate provides students with a sound understanding of the science, technology, and applications essential for successful employment in the welding and metal industry.

Instruction includes an introduction to consumable and non-consumable electrode welding and cutting processes. Additional courses in blueprint reading, metallurgy, and destructive testing provides the student with industry-standard skills developed through classroom training and practical application.

Successful graduates of the Welding Technology certificate curriculum may be employed as entry-level technicians in welding and metalworking industries. Career opportunities also exist in construction, manufacturing, fabrication, sales, quality control, and welding-related self-employment.

WELDING TECHNOLOGY — C50420B

WLD 115a	SMAW (Stick) Plate-Part 1	4
WLD 115b	SMAW (Stick) Plate-Part 2	1
WLD 141	Symbols and Specifications	3

Major Electives

Choose 4 credit hours from the following

WLD 116	SMAW (Stick) Plate/Pipe	4
WLD 121	GMAW (MIG) FCAW/Plate	4
WLD 131	GTAW (TIG) Plate	4

Completion Requirements12 Credit Hours

COLLABORATIVE AGREEMENTS WITH OTHER COMMUNITY COLLEGES

COURT REPORTING AND CAPTIONING

Wake Technical Community College has a collaborative agreement with Lenoir Community College. Students may take the classes listed below at Wake Tech and they will count toward the associate in applied science degree in Court Reporting and Captioning at Lenoir. Most of the remaining courses may be taken by telecourse in Raleigh. *Students must contact Lenoir Community College for admissions into the program.*

The Court Reporting and Captioning curriculum is designed to provide specialized training in accepted court reporting and conference procedures such as recording court proceedings in a computer-integrated courtroom, depositions, business and convention meetings, and realtime captioning activities.

Course work includes training in realtime machine shorthand theory, realtime computer software and technology, word processing, legal and medical terminology, specialized vocabularies, court procedures, dictation, and transcription.

Graduates should qualify for employment as an official court reporter, freelance reporter, television and video captioner, stenointerpreter, conference reporter, stenographer, or transcriptionist.

Court Reporting and Captioning — A25140

General Education Courses

ENG 111	Expository Writing	3
ENG 114	Professional Research and Reporting	3
BIO 161	Introduction to Human Biology	3

Social/Behavioral Sciences Elective

Select 3 hours from the following courses

ANT 210	General Anthropology	3
ECO 251	Principles of Microeconomics	3
ECO 252	Principles of Macroeconomics	3
HIS 121	Western Civilization I	3
HIS 122	Western Civilization II	3
HIS 131	American History I	3
HIS 132	American History II	3
POL 120	American Government	3
PSY 150	General Psychology	3
SOC 210	Introduction to Sociology	3
SOC 213	Sociology of the Family	3
SOC 220	Social Problems	3

Humanities/Fine Arts Elective

Select 3 hours from the following courses

ART 111	Art Appreciation	3
ENG 231	American Literature I	3
ENG 232	American Literature II	3
ENG 241	British Literature I	3
ENG 242	British Literature II	3

FRE 111	Elementary French I	3
FRE 112	Elementary French II	3
FRE 211	Intermediate French I	3
FRE 212	Intermediate French II	3
HUM 110	Technology and Society	3
MUS 110	Music Appreciation	3
PHI 215	Philosophical Issues	3
REL 110	World Religions	3
REL 211	Introduction to Old Testament	3
REL 212	Introduction to New Testament	3
SPA 111	Elementary Spanish I	3
SPA 112	Elementary Spanish II	3
SPA 211	Intermediate Spanish I	3
SPA 212	Intermediate Spanish II	3

Major Courses

ACA 111	College Student Success	1
or		
ACA 115	Success and Study Skills	1
BUS 115	Business Law I	3
BUS 116	Business Law II	3
MED 121	Medical Terminology I	3
MED 122	Medical Terminology II	3
OST 131	Keyboarding	2
OST 134	Text Entry and Formatting	3
OST 135	Advanced Text Entry and Format	4
OST 136	Word Processing	2
OST 155	Legal Terminology	3
OST 164	Text Editing Applications	3

In addition to the Court Reporting and Electric Lineman programs, Wake Tech students can also participate in a collaborative Phlebotomy program with Durham Technical Community College.

Wake Tech collaborates with Johnston Community College, Nash Community College, and Wilson Technical Community College to offer Industrial Pharmaceutical courses for their students.

For more information about the courses offered in these programs, see the Associate Degree Programs section of this catalog.

Pre-Curriculum Program

Any person who has a high school diploma or a GED may enroll in the Pre-Curriculum Program, a series of courses designed to help students develop their academic skills in the areas of mathematics, reading, and writing, before proceeding with their regular curriculum courses. The number of courses needed and, consequently, the length of time required to complete the courses will vary. Some students may need only one course, while other students may take several semesters to complete a series of courses. Students are placed in Pre-Curriculum courses on the basis of their admissions test scores, upon the recommendation of their advisor or curriculum instructor, or due to voluntary selection of courses. Depending on their individual circumstances and with the approval of their advisor, students may take a combination of Pre-Curriculum and regular curriculum courses during the same term. The majority of these courses are offered every term, both day and evening.

Progression Criteria: A student taking **required** Pre-Curriculum courses must earn a grade of "C" or better in order to progress to the curriculum program or to the next Pre-Curriculum course level. A grade of "F" requires the student to repeat the course.

PRE-CURRICULUM PROGRAM CURRICULUM OFFERINGS

OFFERED EACH SEMESTER AS NEEDED

		Hours Per Week		Semester		
		Class	Lab	Work/ Clinical	Hours Credit	
Course Title						
ACA	090	Study Skills.....	3	0	0	3
BIO	094	Concepts of Human Biology.....	3	2	0	4
CHM	090	Chemistry Concepts.....	4	0	0	4
CHM	092	Fundamentals of Chemistry.....	3	2	0	4
CIS	070	Fundamentals of Computing.....	0	2	0	1
EFL	030	English for Special Purposes.....	3	0	0	3
EFL	050	English for Academic Purposes.....	5	0	0	5
EFL	061	Listening/Speaking I.....	5	0	0	5
EFL	062	Listening/Speaking II.....	5	0	0	5
EFL	063	Listening/Speaking III.....	5	0	0	5
EFL	064	Listening/Speaking IV.....	5	0	0	5
EFL	071	Reading I.....	5	0	0	5
EFL	072	Reading II.....	5	0	0	5
EFL	073	Reading III.....	5	0	0	5
EFL	074	Reading IV.....	5	0	0	5
EFL	081	Grammar I.....	5	0	0	5
EFL	082	Grammar II.....	5	0	0	5
EFL	083	Grammar III.....	5	0	0	5
EFL	084	Grammar IV.....	5	0	0	5
EFL	091	Composition I.....	5	0	0	5
EFL	092	Composition II.....	5	0	0	5
EFL	093	Composition III.....	5	0	0	5
EFL	094	Composition IV.....	5	0	0	5
EFL	095	Composition V.....	5	0	0	5
ENG	070	Basic Language Skills.....	2	2	0	3
ENG	075	Reading and Language Essentials.....	5	0	0	5
ENG	075A	Reading and Language Essentials Lab.....	0	2	0	1
ENG	080	Writing Foundations.....	3	2	0	4
ENG	090	Composition Strategies.....	3	0	0	3
ENG	090A	Composition Strategies Lab.....	0	2	0	1
MAT	050	Basic Math Skills.....	3	2	0	4
MAT	060	Essential Mathematics.....	3	2	0	4
MAT	070	Introductory Algebra.....	3	2	0	4
MAT	080	Intermediate Algebra.....	3	2	0	4
MAT	090	Accelerated Algebra.....	3	2	0	4
MAT	095	Algebraic Concepts.....	3	0	0	3
MAT	099	Using Technology in Math.....	1	0	0	1
OST	080	Keyboarding Literacy.....	1	2	0	2
RED	070	Essential Reading Skills.....	3	2	0	4
RED	080	Introduction to College Reading.....	3	2	0	4
RED	090	Improved College Reading.....	3	2	0	4

COURSE DESCRIPTIONS ^{*}

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Course Title	Hours Per Week			Semester Hours
	Class	Lab	Clinical	
ACA 090 Study Skills	3	0	0	3
Prerequisites: None Corequisites: None This course is intended for those who placed into credit-level course work but who are not maintaining satisfactory academic progress toward meeting program goals. Topics include study skills, note taking, learning styles and strategies, test taking, goal setting, and self-assessment skills. Upon completion, students should be able to manage their learning experiences to successfully meet educational goals.				
ACA 111 College Student Success	1	0	0	1
Prerequisites: None Corequisites: None This course introduces the college's physical, academic, and social environment and promotes the personal development essential for success. Topics include campus facilities and resources; policies, procedures, and programs; study skills; and life management issues such as health, self-esteem, motivation, goal-setting, diversity, and communication. Upon completion, students should be able to function effectively within the college environment to meet their educational objectives.				
ACA 115 Success and Study Skills	0	2	0	1
Prerequisites: None Corequisites: None This course provides an orientation to the campus resources and academic skills necessary to achieve educational objectives. Emphasis is placed on an exploration of facilities and services, study skills, library skills, self-assessment, wellness, goal-setting, and critical thinking. Upon completion, students should be able to manage their learning experiences to successfully meet educational goals.				
ACA 118 College Study Skills	1	2	0	2
Prerequisites: None Corequisites: None This course covers skills and strategies designed to improve study behaviors. Topics include time management, note taking, test taking, memory techniques, active reading strategies, critical thinking, communication skills, learning styles, and other strategies for effective learning. Upon completion, students should be able to apply appropriate study strategies and techniques to the development of an effective study plan.				
ACA 120 Career Assessment	1	0	0	1
Prerequisites: None Corequisites: None This course provides the information and strategies necessary to develop clear personal, academic, and professional goals. Topics include personality styles, goal setting, various college curricula, career choices, and campus leadership development. Upon completion, students should be able to clearly state their personal, academic, and professional goals and have a feasible plan of action to achieve those goals.				

Course Title	Hours Per Week			Semester Hours
	Class	Lab	Clinical	
ACA 220 Professional Transition	1	0	0	1
Prerequisites: None Corequisites: None This course provides preparation for meeting the demands of employment or education beyond the community college experience. Emphasis is placed on strategic planning, gathering information on workplaces or colleges, and developing human interaction skills for professional, academic, and/or community life. Upon completion, students should be able to successfully make the transition to appropriate workplaces or senior institutions.				
ACC 120 Principles of Financial Accounting	3	2	0	4
Prerequisites: RED 090 or EFL 074, and MAT 070, Corequisites: None This course introduces business decision-making accounting information systems. Emphasis is placed on analyzing, summarizing, reporting, and interpreting financial information. Upon completion, students should be able to prepare financial statements, understand the role of financial information in decision-making and address ethical considerations.				
ACC 121 Principles of Managerial Accounting	3	2	0	4
Prerequisites: ACC 120 Corequisites: None This course includes a greater emphasis on managerial and cost accounting skills. Emphasis is placed on managerial accounting concepts for external and internal analysis, reporting and decision-making. Upon completion, students should be able to analyze and interpret transactions relating to managerial concepts including product-costing systems. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.				
ACC 125 Mathematics of Finance	3	0	0	3
Prerequisites: BUS 121 or MAT 115 Corequisites: None This course covers computations necessary in accounting for various business transactions. Emphasis is placed on time value of money concepts and calculations needed for topics such as stocks and bonds, annuities, sinking funds, and amortization. Upon completion, students should be able to make computations necessary in accounting for transactions involving these topics.				
ACC 129 Individual Income Taxes	2	2	0	3
Prerequisites: CIS 111 Corequisites: None This course introduces the relevant laws governing individual income taxation. Topics include tax law, electronic research and methodologies, and the use of technology for preparation of individual tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various individual tax forms.				

*Changes may have been made since the printing of this catalog. Students should contact their advisors for updates

ACC 130 Business Income Taxes 2 2 0 3

Prerequisites: ACC 129

Corequisites: None

This course introduces the relevant laws governing business and fiduciary income taxes. Topics include tax law relating to business organizations, electronic research and methodologies, and the use of technology for the preparation of business tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various business tax forms.

ACC 140 Payroll Accounting 1 2 0 2

Prerequisites: ACC 115 or ACC 120

Corequisites: None

This course covers federal and state laws pertaining to wages, payroll taxes, payroll tax forms, and journal and general ledger transactions. Emphasis is placed on computing wages; calculating social security, income, and unemployment taxes; preparing appropriate payroll tax forms; and journalizing/posting transactions. Upon completion, students should be able to analyze data, make appropriate computations, complete forms, and prepare accounting entries using appropriate technology.

ACC 149 Introduction to Accounting Spreadsheets 1 2 0 2

Prerequisites: ACC 115 or ACC 120, and CIS 111

Corequisites: None

This course provides a working knowledge of computer spreadsheets and their use in accounting. Topics include pre-programmed problems, model-building problems, beginning-level macros, graphics, and what-if analysis enhancements of template problems. Upon completion, students should be able to use a computer spreadsheet to complete many of the tasks required in accounting.

ACC 150 Accounting Software Applications 1 2 0 2

Prerequisites: ACC 115 or ACC 120, and CIS 111

Corequisites: None

This course introduces microcomputer applications related to accounting systems. Topics include general ledger, accounts receivable, accounts payable, inventory, payroll, and correcting, adjusting, and closing entries. Upon completion, students should be able to use a computer accounting package to solve accounting problems.

ACC 175 Hotel and Restaurant Accounting 3 2 0 4

Prerequisites: MAT 115

Corequisites: None

This course covers generally accepted accounting principles and the uniform system of accounts for small hotels and motels of the American Hotel and Motel Association. Emphasis is placed on the accounting cycle, analysis of financial statements, and payroll procedures including treatment of tips. Upon completion, students should be able to demonstrate competence in the accounting principles and procedures used in hotels and restaurants.

ACC 215 Ethics in Accounting 3 0 0 3

Prerequisites: ACC 121

Corequisites: None

This course introduces students to professional codes of conduct and ethics adopted by professional associations and state licensing boards for accountants, auditors, and fraud examiners. Topics include research and discussions of selected historical and contemporary ethical cases and issues as they relate to accounting and business. Upon completion, students should be able to apply codes, interpret facts and circumstances, as they relate to accounting firms and business activities.

ACC 220 Intermediate Accounting I 3 2 0 4

Prerequisites: ACC 121

Corequisites: None

This course is a continuation of the study of accounting principles with in-depth coverage of theoretical concepts and financial statements. Topics include generally accepted accounting principles and an extensive analysis of financial statements. Upon completion, students should be able to demonstrate competence in the conceptual framework underlying financial accounting, including the application of financial standards.

ACC 221 Intermediate Accounting II 3 2 0 4

Prerequisites: ACC 220

Corequisites: None

This course is a continuation of ACC 220. Emphasis is placed on special problems which may include leases, bonds, investments, ratio analyses, present value applications, accounting changes, and corrections. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered.

ACC 225 Cost Accounting 3 0 0 3

Prerequisites: ACC 121

Corequisites: None

This course introduces the nature and purposes of cost accounting as an information system for planning and control. Topics include direct materials, direct labor, factory overhead, process, job order, and standard cost systems. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered.

ACC 226 Advanced Managerial Accounting 3 0 0 3

Prerequisites: ACC 121

Corequisites: None

This course is designed to develop an appreciation for the uses of cost information in the administration and control of business organizations. Emphasis is placed on how accounting data can be interpreted and used by management in planning and controlling business activities. Upon completion, students should be able to analyze and interpret cost information and present this information in a form that is usable by management.

ACC 227 Practices in Accounting 3 0 0 3
 Prerequisites: ACC 220

Corequisites: None

This course provides an advanced in-depth study of selected topics in accounting using case studies and individual and group problem solving. Topics include cash flow, financial statement analysis, individual and group problem solving, practical approaches to dealing with clients, ethics, and critical thinking. Upon completion, students should be able to demonstrate competent analytical skills and effective communication of their analysis in written and/or oral presentations.

ACC 240 Governmental and Not-for-Profit Accounting 3 0 0 3

Prerequisites: ACC 121

Corequisites: None

This course introduces principles and procedures applicable to governmental and not-for-profit organizations. Emphasis is placed on various budgetary accounting procedures and fund accounting. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered.

ACC 268 Information Systems and Internal Controls 3 0 0 3

Prerequisites: ACC 121

Corequisites: None

This course covers the design and operation of accounting information systems, with emphasis placed upon transaction cycles and the necessary controls for reliable data. Topics include accounting procedures; authorizing, documentation, and monitoring; flowcharting, data flow diagrams, and scheduling; and some auditing concepts. Upon completion, students should be able to demonstrate an analytical problem-solving ability and to communicate effectively their analysis in written or oral presentations.

ACC 269 Audit & Assurance Services 3 0 0 3

Prerequisites: ACC 220

Corequisites: None

This course introduces selected topics pertaining to the objectives, theory and practices in engagements providing auditing and other assurance services. Topics will include planning, conducting and reporting, with emphasis on the related professional ethics and standards. Upon completion, students should be able to demonstrate an understanding of the types of professional services, the related professional standards, and engagement methodology.

AHR 110 Introduction to Refrigeration 2 6 0 5

Prerequisites: None

Corequisites: None

This course introduces the basic refrigeration process used in mechanical refrigeration and air conditioning systems. Topics include terminology, safety, and identification and function of components; refrigeration cycle; and tools and instrumentation used in mechanical refrigeration systems. Upon completion, students should be able to identify refrigeration systems and components, explain the refrigeration process, and use the tools and instrumentation of the trade.

AHR 111 HVACR Electricity 2 2 0 3

Prerequisites: None

Corequisites: None

This course introduces electricity as it applies to HVACR equipment. Emphasis is placed on power sources, interaction of electrical components, wiring of simple circuits, and the use of electrical test equipment. Upon completion, students should be able to demonstrate good wiring practices and the ability to read simple wiring diagrams.

AHR 112 Heating Technology 2 4 0 4

Prerequisites: None

Corequisites: None

This course covers the fundamentals of heating including oil, gas, and electric heating systems. Topics include safety, tools and instrumentation, system operating characteristics, installation techniques, efficiency testing, electrical power, and control systems. Upon completion, students should be able to explain the basic oil, gas, and electrical heating systems and describe the major components of a heating system.

AHR 112a Heating Technology- Part 1 1 2 0 2

Prerequisites: None

Corequisites: None

This course is the first half of AHR 112 (see the description for AHR 112 above).

AHR 112b Heating Technology- Part 2 1 2 0 2

Prerequisites: AHR 112a

Corequisites: None

This course is the second half of AHR 112 (see the description for AHR 112 above).

AHR 113 Comfort Cooling 2 4 0 4

Prerequisites: None

Corequisites: None

This course covers the installation procedures, system operations, and maintenance of residential and light commercial comfort cooling systems. Topics include terminology, component operation, and testing and repair of equipment used to control and produce assured comfort levels. Upon completion, students should be able to use psychometrics, manufacturer specifications, and test instruments to determine proper system operation.

AHR 114 Heat Pump Technology 2 4 0 4
 Prerequisites: AHR 110 or AHR 113
 Corequisites: None
 This course covers the principles of air source and water source heat pumps. Emphasis is placed on safety, modes of operation, defrost systems, refrigerant charging, and system performance. Upon completion, students should be able to understand and analyze system performance and perform routine service procedures.

AHR 115 Refrigeration Systems 1 3 0 2
 Prerequisites: AHR 110
 Corequisites: None
 This course introduces refrigeration systems and applications. Topics include defrost methods, safety and operational control, refrigerant piping, refrigerant recovery and charging, and leak testing. Upon completion, students should be able to assist in installing and testing refrigeration systems and perform simple repairs.

AHR 130 HVAC Controls 2 2 0 3
 Prerequisites: AHR 111 or ELC 111
 Corequisites: None
 This course covers the types of controls found in residential and commercial comfort systems. Topics include electrical and electronic controls, control schematics and diagrams, test instruments, and analysis and troubleshooting of electrical systems. Upon completion, students should be able to diagnose and repair common residential and commercial comfort system controls.

AHR 133 HVAC Servicing 2 6 0 4
 Prerequisites: None
 Corequisites: AHR 112 or AHR 113
 The course covers the maintenance and servicing of HVAC equipment. Topics include testing, adjusting, maintaining, and troubleshooting HVAC equipment and record keeping. Upon completion, students should be able to adjust, maintain, and service HVAC equipment.

AHR 151 HVAC Duct Systems I 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the techniques used to lay out and fabricate duct work commonly found in HVAC systems. Emphasis is placed on the skills required to fabricate duct work. Upon completion, students should be able to lay out and fabricate simple duct work.

AHR 152 HVAC Duct Systems II 1 3 0 2
 Prerequisites: AHR 151
 Corequisites: None
 This course introduces the techniques used to lay out and fabricate more advanced types of duct work found in HVAC systems. Emphasis is placed on the skills required to work with complex rectangular and round fittings and transitions. Upon completion, students should be able to lay out and fabricate complex rectangular and round fittings. This course also includes field measuring for unit tie-ins.

AHR 160 Refrigerant Certification 1 0 0 1
 Prerequisites: None
 Corequisites: None
 This course covers the requirements for the EPA certification examinations. Topics include small appliances, high pressure systems, and low pressure systems. Upon completion, students should be able to demonstrate knowledge of refrigerants and be prepared for the EPA certification examinations.

AHR 180 HVACR Customer Relations 1 0 0 1
 Prerequisites: None
 Corequisites: None
 This course introduces common business and customer relation practices that may be encountered in HVACR. Topics include business practices, appearance of self and vehicle, ways of handling customer complaints, invoices, telephone communications, and warranties. Upon completion, students should be able to present themselves to customers in a professional manner, understand how the business operates, complete invoices, and handle complaints.

AHR 210 Residential Building Code 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course covers the residential building codes that are applicable to the design and installation of HVAC systems. Topics include current residential codes as applied to HVAC design, service, and installation. Upon completion, students should be able to demonstrate the correct usage of residential building codes that apply to specific areas of the HVAC trade.

AHR 211 Residential System Design 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the principles and concepts of conventional residential heating and cooling system design. Topics include heating and cooling load estimating, basic psychometrics, equipment selection, duct system selection, and system design. Upon completion, students should be able to design a basic residential heating and cooling system.

AHR 212 Advanced Comfort Systems 2 6 0 4
 Prerequisites: AHR 114
 Corequisites: None
 This course covers water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pump systems including variable speed drives and controls. Emphasis is placed on the application, installation, and servicing of water-source systems and the mechanical and electronic control components of advanced comfort systems. Upon completion, students should be able to test, analyze, and troubleshoot water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pumps.

AHR 215 Commercial HVAC Controls 1 3 0 2
 Prerequisites: AHR 111 or ELC 111
 Corequisites: None
 This course introduces HVAC control systems used in commercial applications. Topics include electric/electronic control systems, pneumatic control systems, DDC temperature sensors, humidity sensors, pressure sensors, wiring, controllers, actuators, and controlled devices. Upon completion, students should be able to verify or correct the performance of common control systems with regard to sequence of operation and safety.

AHR 220 Commercial Building Codes 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the appropriate sections of the *North Carolina State Building Code* that govern the installation of commercial comfort, refrigeration, and mechanical systems. Emphasis is placed on using and understanding applications sections of the *North Carolina State Building Code*. Upon completion, students should be able to use the *North Carolina State Building Code* to locate information regarding the installation of commercial systems.

AHR 225 Commercial System Design	2	3	0	3
Prerequisites: AHR 211 Corequisites: None This course covers the principles of designing heating and cooling systems for commercial buildings. Emphasis is placed on commercial heat loss/gain calculations, applied psychometrics, air-flow calculations, air distribution system design, and equipment selection. Upon completion, students should be able to calculate heat loss/gain, design and size air and water distribution systems, and select equipment.				
AHR 240 Hydronic Heating	1	3	0	2
Prerequisites: AHR 112 Corequisites: None This course covers the accepted procedures for proper design, installation, and balance of hydronic heating systems for residential or commercial buildings. Topics include heating equipment; pump, terminal unit, and accessory selection; piping system selection and design; and pipe sizing and troubleshooting. Upon completion, students should be able to assist with the proper design, installation, and balance of typical hydronic systems.				
AHR 245 Chiller Systems	1	3	0	2
Prerequisites: AHR 110 Corequisites: None This course introduces the fundamentals of liquid chilling equipment. Topics include characteristics of water, principles of water chilling, the chiller, the refrigerant, water and piping circuits, freeze prevention, purging, and equipment flexibility. Upon completion, students should be able to describe the components, controls, and overall operation of liquid chilling equipment and perform basic maintenance tasks.				
AHR 250 HVAC System Diagnostics	0	4	0	2
Prerequisites: None Corequisites: AHR 212 This course is a comprehensive study of air conditioning, heating, and refrigeration system diagnostics and corrective measures. Topics include advanced system analysis, measurement of operating efficiency, and inspection and correction of all major system components. Upon completion, students should be able to restore a residential or commercial AHR system so that it operates at or near manufacturers' specifications. This course also includes variable air volume box set-up, test and balance air and water systems.				
AHR 263 Energy Management	1	3	0	2
Prerequisites: AHR 125 or AHR 215 Corequisites: None This course covers building automation computer programming as currently used in energy management. Topics include night setback, duty cycling, synchronization, schedule optimization, and anticipatory temperature control. Upon completion, students should be able to write programs utilizing the above topics and connect computer systems to HVAC systems.				
ANT 210 General Anthropology	3	0	0	3
Prerequisites: ENG 090, RED 090 Corequisites: None This course introduces the physical, archaeological, linguistic, and ethnological fields of anthropology. Topics include human origins, genetic variations, archaeology, linguistics, primatology, and contemporary cultures. Upon completion, students should be able to demonstrate an understanding of the four major fields of anthropology.				

ANT 220 Cultural Anthropology	3	0	0	3
Prerequisites: ENG 090, RED 090 Corequisites: None This course introduces the nature of human culture. Emphasis is placed on cultural theory, methods of fieldwork, and cross-cultural comparisons in the areas of ethnology, language, and the cultural past. Upon completion, students should be able to demonstrate an understanding of basic cultural processes and how cultural data are collected and analyzed.				
ANT 221 Comparative Cultures	3	0	0	3
Prerequisites: ENG 090, RED 090, or placement Corequisites: None This course provides an ethnographic survey of societies around the world covering their distinctive cultural characteristics and how these relate to cultural change. Emphasis is placed on the similarities and differences in social institutions such as family, economics, politics, education, and religion. Upon completion, students should be able to demonstrate knowledge of a variety of cultural adaptive strategies.				
ANT 230 Physical Anthropology	3	0	0	3
Prerequisites: ENG 090, RED 090 Corequisites: ANT 230A This course introduces the scientific study of human evolution. Emphasis is placed on evolutionary theory, population genetics, biocultural adaptation and human variation, as well as non-human primate evolution, morphology, and behavior. Upon completion, students should be able to demonstrate an understanding of the biological and cultural processes which have resulted in the formation of the human species.				
ANT 230A Physical Anthropology Lab	0	2	0	1
Prerequisites: ENG 090, RED 090 Corequisites: ANT 230 This course provides laboratory work that reinforces the material presented in ANT 230. Emphasis is placed on laboratory exercises which may include fossil identification, genetic analysis, skeletal comparisons, forensics, computer simulations, and field observations. Upon completion, students should be able to demonstrate an understanding of the analytical skills employed by anthropologists in the study of primate evolution and variation.				
ANT 240 Archaeology	3	0	0	3
Prerequisites: ENG 090, RED 090 Corequisites: None This course introduces the scientific study of the unwritten record of the human past. Emphasis is placed on the process of human cultural evolution as revealed through archaeological methods of excavation and interpretation. Upon completion, students should be able to demonstrate an understanding of how archaeologists reconstruct the past and describe the variety of past human cultures.				
ARC 111 Introduction to Architectural Technology	1	6	0	3
Prerequisites: None Corequisites: None This course introduces basic architectural drafting techniques, lettering, use of architectural and engineer scales, and sketching. Topics include orthographic, axonometric, and oblique drawing techniques using architectural plans, elevations, sections, and details; reprographic techniques; and other related topics. Upon completion, students should be able to prepare and print scaled drawings within minimum architectural standards.				

ARC 112 Construction Materials and Methods 3 2 0 4
 Prerequisites: None
 Corequisites: None
 This course introduces construction materials and their methodologies. Topics include construction terminology, materials and their properties, manufacturing processes, construction techniques, and other related topics. Upon completion, students should be able to detail construction assemblies and identify construction materials and properties.

ARC 113 Residential Architectural Technology 1 6 0 3
 Prerequisites: ARC 111, ARC 112
 Corequisites: None
 This course covers intermediate residential working drawings. Topics include residential plans, elevations, sections, details, schedules, and other related topics. Upon completion, students should be able to prepare a set of residential working drawings that are within accepted architectural standards.

ARC 114 Architectural CAD 1 3 0 2
 Prerequisites: None
 Corequisites: ARC 111 or LAR 111
 This course introduces basic architectural CAD techniques. Topics include basic commands and system hardware and software. Upon completion, students should be able to prepare and plot architectural drawings to scale within accepted architectural standards. This course is an introduction to CAD using AutoCAD software

ARC 114A Architectural CAD Lab 0 3 0 1
 Prerequisites: None
 Corequisites: ARC 114
 This course provides a laboratory setting to enhance architectural CAD skills. Emphasis is placed on further development of commands and system operation. Upon completion, students should be able to prepare and plot scaled architectural drawings.

ARC 131 Building Codes 2 2 0 3
 Prerequisites: ARC 112
 Corequisites: None
 This course covers the methods of researching building codes for specific projects. Topics include residential and commercial building codes. Upon completion, students should be able to determine the code constraints governing residential and commercial projects.

ARC 160 Residential Design 1 6 0 3
 Prerequisites: ARC 111
 Corequisites: ARC 112
 This course introduces the methodology of basic residential design. Topics include residential site design, space organization and layout, residential styles, and the development of schematic design. Upon completion, students should be able to design a residence.

ARC 211 Light Construction Technology 1 6 0 3
 Prerequisites: ARC 111, ARC 113, ARC 114
 Corequisites: ARC 112
 This course covers working drawings for light construction. Topics include plans, elevations, sections, and details; schedules; and other related topics. Upon completion, students should be able to prepare a set of working drawings which are within accepted architectural standards.

ARC 212 Commercial Construction Technology 1 6 0 3
 Prerequisites: ARC 111
 Corequisites: ARC 112
 This course introduces regional construction techniques for commercial plans, elevations, sections, and details. Topics include production of a set of commercial contract documents and other related topics. Upon completion, students should be able to prepare a set of working drawings in accordance with building codes.

ARC 213 Design Project 2 6 0 4
 Prerequisites: ARC 111, ARC 112, ARC 113, ARC 114, ARC 211
 Corequisites: None
 This course provides the opportunity to design and prepare a set of contract documents within an architectural setting. Topics include schematic design, design development, construction documents, and other related topics. Upon completion, students should be able to prepare a set of commercial contract documents.

ARC 220 Advanced Architectural CAD 1 3 0 2
 Prerequisites: ARC 114
 Corequisites: None
 This course provides file management, productivity, and CAD customization skills. Emphasis is placed on developing advanced proficiency techniques. Upon completion, students should be able to create prototype drawings and symbol libraries, compose sheets with multiple details, and use advanced drawing and editing commands. This course is advanced CAD using AutoCAD software.

ARC 221 Architectural 3-D CAD 1 4 0 3
 Prerequisites: ARC 114
 Corequisites: None
 This course introduces architectural three-dimensional CAD applications. Topics include three-dimensional drawing, coordinate systems, viewing, rendering, modeling, and output options. Upon completion, students should be able to prepare architectural three-dimensional drawings and renderings.

ARC 230 Environmental Systems 3 3 0 4
 Prerequisites: ARC 111, MAT 121
 Corequisites: None
 This course introduces plumbing, mechanical (HVAC), and electrical systems for the architectural environment. Topics include basic plumbing, mechanical, and electrical systems for residential and/or commercial buildings with an introduction to selected code requirements. Upon completion, students should be able to develop schematic drawings for plumbing, mechanical, and electrical systems and perform related calculations.

ARC 240 Site Planning 2 2 0 3
 Prerequisites: ARC 111 or LAR 111
 Corequisites: None
 This course introduces the principles of site planning, grading plans, and earthwork calculations. Topics include site analysis, site work, site utilities, cut and fill, soil erosion control, and other related topics. Upon completion, students should be able to prepare site development plans and details and perform cut and fill calculations.

ARC 241 Contract Administration 1 2 0 2
 Prerequisites: ARC 111 and ARC 112, or LAR 111 and LAR 112
 Corequisites: None
 This course covers the techniques for reviewing the progress of construction projects. Topics include site observations, field reports, applications for payment, change orders, and other related topics. Upon completion, students should be able to review construction progress and produce appropriate documentation.

ARC 250 Survey of Architecture 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the historical trends in architectural form. Topics include historical and current trends in architecture. Upon completion, students should be able to demonstrate an understanding of significant historical and current architectural styles.

ARC 261 Solar Technology 1 2 0 2
 Prerequisites: ARC 111
 Corequisites: None
 This course introduces passive and active solar design theory and application. Topics include passive solar design, active solar theory, heat loss analysis, and other related topics. Upon completion, students should be able to design a passive solar system.

ARC 264 Digital Architecture 1 3 0 2
 Prerequisites: ARC 114
 Corequisites: None
 This course covers multiple digital architectural techniques. Topics include spreadsheets and word processing procedures, on-line resources, modems, e-mail, image capture, multimedia, and other related topics. Upon completion, students should be able to transmit/receive electronic data, create multimedia presentations, and produce a desktop publishing document.

ARC 291 Selected Topics in Architectural Technology - - - 1
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Architectural Technology. Emphasis is placed on subject matter appropriate to architectural technologies. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ARC 292 Selected Topics in Architectural Technology - - - 2
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Architectural Technology. Emphasis is placed on subject matter appropriate to architectural technologies. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ARC 293 Selected Topics in Architectural Technology - - - 3
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Architectural Technology. Emphasis is placed on subject matter appropriate to architectural technologies. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ART 111 Art Appreciation 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course introduces the origins and historical development of art. Emphasis is placed on the relationship of design principles to various art forms including but not limited to sculpture, painting, and architecture. Upon completion, students should be able to identify and analyze a variety of artistic styles, periods, and media.

ART 113 Art Methods and Materials 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an overview of media and techniques. Emphasis is placed on exploration and manipulation of materials. Upon completion, students should be able to demonstrate familiarity with a variety of methods, materials, and processes.

ART 114 Art History Survey I 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course covers the development of art forms from ancient times to the Renaissance. Emphasis is placed on content, terminology, design, and style. Upon completion, students should be able to demonstrate an historical understanding of art as a product reflective of human social development.

ART 115 Art History Survey II 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course covers the development of art forms from the Renaissance to the present. Emphasis is placed on content, terminology, design, and style. Upon completion, students should be able to demonstrate an historical understanding of art as a product reflective of human social development.

ART 116 Survey of American Art 3 0 0 3
 Prerequisites: RED 090, ENG 090, or placement
 Corequisites: None
 This course covers the development of American art forms from colonial times to the present. Emphasis is placed on architecture, painting, sculpture, graphics, and the decorative arts. Upon completion, students should be able to demonstrate understanding of the history of the American creative experience.

ART 117 Non-Western Art History 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course introduces non-Western cultural perspectives. Emphasis is placed on, but not limited to, African, Oriental, and Oceanic art forms throughout history. Upon completion, students should be able to demonstrate an historical understanding of art as a product reflective of non-Western social and cultural development.

ART 121 Design I 0 6 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the elements and principles of design as applied to two-dimensional art. Emphasis is placed on the structural elements, the principles of visual organization, and the theories of color mixing and interaction. Upon completion, students should be able to understand and use critical and analytical approaches as they apply to two-dimensional visual art.

ART 122 Design II	0	6	0	3
Prerequisites: ART 121				
Corequisites: None				
This course introduces basic studio problems in three-dimensional visual design. Emphasis is placed on the structural elements and organizational principles as applied to mass and space. Upon completion, students should be able to apply three-dimensional design concepts.				
ART 130 Basic Drawing	0	4	0	2
Prerequisites: None				
Corequisites: None				
This course introduces basic drawing techniques and is designed to increase observation skills. Emphasis is placed on the fundamentals of drawing. Upon completion, students should be able to demonstrate various methods and their application to representational imagery.				
ART 131 Drawing I	0	6	0	3
Prerequisites: None				
Corequisites: None				
This course introduces the language of drawing and the use of various drawing materials. Emphasis is placed on drawing techniques, media, and graphic principles. Upon completion, students should be able to demonstrate competence in the use of graphic form and various drawing processes.				
ART 132 Drawing II	0	6	0	3
Prerequisites: ART 131				
Corequisites: None				
This course continues instruction in the language of drawing and the use of various materials. Emphasis is placed on experimentation in the use of drawing techniques, media, and graphic materials. Upon completion, students should be able to demonstrate increased competence in the expressive use of graphic form and techniques.				
ART 140 Basic Painting	0	4	0	2
Prerequisites: None				
Corequisites: None				
This course introduces the mechanics of painting. Emphasis is placed on the exploration of painting media through fundamental techniques. Upon completion, students should be able to demonstrate a basic understanding and application of painting.				
ART 240 Painting I	0	6	0	3
Prerequisites: None				
Corequisites: None				
This course introduces the language of painting and the use of various painting materials. Emphasis is placed on the understanding and use of various painting techniques, media, and color principles. Upon completion, students should be able to demonstrate competence in the use of creative processes directed toward the development of expressive form.				
ART 244 Watercolor	0	6	0	3
Prerequisites: None				
Corequisites: None				
This course introduces basic methods and techniques used in watercolor. Emphasis is placed on application, materials, content, and individual expression. Upon completion, students should be able to demonstrate a variety of traditional and nontraditional concepts used in watercolor media.				

ART 281 Sculpture I	0	6	0	3
Prerequisites: None				
Corequisites: None				
This course provides an exploration of the creative and technical methods of sculpture with focus on the traditional processes. Emphasis is placed on developing basic skills as they pertain to three-dimensional expression in various media. Upon completion, students should be able to show competence in variety of sculptural approaches.				
AST 111 Descriptive Astronomy	3	0	0	3
Prerequisites: MAT 161 or MAT 171				
Corequisites: AST 111A				
This course introduces an overall view of modern astronomy. Topics include an overview of the solar system, the sun, stars, galaxies, and the larger universe. Upon completion, students should be able to demonstrate an understanding of the universe around them.				
AST 111A Descriptive Astronomy Lab	0	2	0	1
Prerequisites: MAT 161 or MAT 171				
Corequisites: AST 111				
The course is a laboratory to accompany AST 111. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 111 and which provide practical experience. Upon completion, students should be able to demonstrate an understanding of the universe around them.				
AST 151 General Astronomy I	3	0	0	3
Prerequisites: MAT 161 or MAT 171				
Corequisites: AST 151A				
This course introduces the science of modern astronomy with a concentration on the solar system. Emphasis is placed on the history and physics of astronomy and an introduction to the solar system, including the planets, comets, and meteors. Upon completion, students should be able to demonstrate a general understanding of the solar system.				
AST 151A General Astronomy I Lab	0	2	0	1
Prerequisites: None				
Corequisites: AST 151				
The course is a laboratory to accompany AST 151. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 151 and which provide practical experience. Upon completion, students should be able to demonstrate a general understanding of the solar system.				
AST 152 General Astronomy II	3	0	0	3
Prerequisites: AST 151				
Corequisites: AST 152A				
This course is a continuation of AST 151 with primary emphasis beyond the solar system. Topics include the sun, stars, galaxies, and the larger universe, including cosmology. Upon completion, students should be able to demonstrate a working knowledge of astronomy.				
AST 152A General Astronomy II Lab	0	2	0	1
Prerequisites: AST 151				
Corequisites: AST 152				
The course is a laboratory to accompany AST 152. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 152 and which provide practical experience. Upon completion, students should be able to demonstrate a working knowledge of astronomy.				

ATR 112 Introduction to Automation 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the basic principles of automated manufacturing and describes the tasks that technicians perform on the job. Topics include the history, development, and current applications of robots and automated systems including their configuration, operation, components, and controls. Upon completion, students should be able to understand the basic concepts of automation and robotic systems.

ATR 211 Robot Programming 2 3 0 3
 Prerequisites: CIS 110 or CIS 111
 Corequisites: None
 This course provides the operational characteristics of industrial robots and programming in their respective languages. Topics include robot programming utilizing teach pendants, PLCs, and personal computers; and the interaction of external sensors, machine vision, network systems, and other related devices. Upon completion, students should be able to program and demonstrate the operation of various robots.

ATR 213 Programmable Controllers 3 3 0 4
 Prerequisites: ELC 131
 Corequisites: None
 This course provides a detailed study of the PLC, related hardware and programming format, and applications in the automated work cell. Topics include input/output modules, power supplies, operator interface, ladder logic, and Boolean language programming. Upon completion, students should be able to install, program, and maintain PLC-controlled systems.

ATR 214 Advanced PLCs 3 3 0 4
 Prerequisites: ATR 213
 Corequisites: None
 This course introduces the study of high-level programming languages and advanced I/O modules. Topics include STATEMENT, GRAFCET, or other advanced programming languages; system networking; computer interfacing; analog and other intelligent I/O modules; and system troubleshooting. Upon completion, students should be able to write and troubleshoot systems using high-level languages and complex I/O modules.

ATR 215 Sensors and Transducers 2 3 0 3
 Prerequisites: ELN 131
 Corequisites: None
 This course provides the theory and application of sensors typically found in an automated manufacturing system. Topics include physical properties, operating range, and other characteristics of numerous sensors and transducers used to detect temperature, pressure, position, and other desired physical parameters. Upon completion, students should be able to properly interface a sensor to a PLC, PC, or process control system.

ATR 218 Computer Integrated Manufacturing 2 3 0 3
 Prerequisites: ATR 211
 Corequisites: None
 This course introduces high technology systems which are currently being used in new automated manufacturing facilities. Topics include integration of robots and work cell components, switches, proxies, vision and photoelectric sensors, with automated control and data gathering systems. Upon completion, students should be able to install, program, and troubleshoot an automated manufacturing cell and its associated data communications systems.

ATR 219 Automated Systems Troubleshooting 1 3 0 2
 Prerequisites: ATR 213
 Corequisites: None
 This course introduces troubleshooting procedures used in automated systems. Topics include logical fault isolation, diagnostic software usage, component replacement techniques, and calibration; safety of equipment; and protection of equipment while troubleshooting. Upon completion, students should be able to analyze and troubleshoot an automated system.

AUT 110 Introduction to Automotive Technology 2 2 0 3
 Prerequisites: AUT 115, AUT 116, AUT 131, AUT 132, AUT 141, AUT 151, AUT 152, AUT 161, AUT 162, AUT 281, AUT 282
 Corequisites: None
 This course covers the basic concepts and terms of automotive technology, workplace safety, North Carolina state inspection, safety and environmental regulations, and use of service information resources. Topics include familiarization with components along with identification and proper use of various automotive hand and power tools. Upon completion, students should be able to describe terms associated with automobiles, identify and use basic tools and shop equipment, and conduct North Carolina safety/emissions inspections.

AUT 115 Engine Fundamentals 2 3 0 3
 Prerequisites: None
 Corequisites: AUT 116
 This course covers the theory, construction, inspection, diagnosis, and repair of internal combustion engines and related systems. Topics include fundamental operating principles of engines and diagnosis, inspection, adjustment, and repair of automotive engines using appropriate service information. Upon completion, students should be able to perform basic diagnosis/repair of automotive engines using appropriate tools, equipment, procedures, and service information.

AUT 116 Engine Repair 1 3 0 2
 Prerequisites: None
 Corequisites: AUT 115
 This course covers service/repair/rebuilding of block, head, and internal engine components. Topics include engine repair/reconditioning using service specifications. Upon completion, students should be able to rebuild/recondition an automobile engine to service specifications.

AUT 131 Drive Trains 2 3 0 3
 Prerequisites: None
 Corequisites: AUT 132
 This course introduces principles of operation of basic automotive drive trains. Emphasis is placed on manual and automatic transmissions, transaxles, and final drive components. Upon completion, students should be able to describe, diagnose, and determine needed service and repairs.

AUT 132 Drive Trains Lab 0 3 0 1
 Prerequisites: None
 Corequisites: None
 This course provides a laboratory setting to enhance the skills for diagnosing and repairing automotive drive trains. Emphasis is placed on practical experiences that enhance the topics presented in AUT 131. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in AUT 131.

AUT 141 Suspension and Steering Systems 2 4 0 4
 Prerequisites: AUT 162
 Corequisites: AUT 151, AUT 152
 This course covers principles of operation, types, and diagnosis/repair of suspension and steering systems to include steering geometry. Topics include manual and power steering systems and standard and electronically controlled suspension and steering systems. Upon completion, students should be able to service and repair various steering and suspension components, check and adjust various alignment angles, and balance wheels.

AUT 151 Brake Systems 2 2 0 3
 Prerequisites: AUT 162
 Corequisites: AUT 141, AUT 152
 This course covers principles of operation and types, diagnosis, service, and repair of brake systems. Topics include drum and disc brakes involving hydraulic, vacuum boost, hydra-boost, electrically powered boost, and anti-lock and parking brake systems. Upon completion, students should be able to diagnose, service, and repair various automotive braking systems.

AUT 152 Brake Systems Lab 0 2 0 1
 Prerequisites: AUT 162
 Corequisites: AUT 141
 This course provides a laboratory setting to enhance brake system skills. Emphasis is placed on practical experiences that enhance the topics presented in AUT 151. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in AUT 151.

AUT 161 Electrical Systems 2 6 0 4
 Prerequisites: AUT 162
 Corequisites: AUT 281, AUT 282
 This course covers basic electrical theory and wiring diagrams, test equipment, and diagnosis/repair/replacement of batteries, starters, alternators, and basic electrical accessories. Topics include diagnosis and repair of battery, starting, charging, lighting, and basic accessory systems problems. Upon completion, students should be able to diagnose, test, and repair the basic electrical components of an automobile.

AUT 162 Chassis Electrical and Electronics 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course covers electrical/electronic diagnosis/repair, including wiring diagrams, instrumentation, and electronic/computer-controlled devices and accessories. Topics include interpreting wiring diagrams and diagnosis and repair of chassis electrical and electronic systems. Upon completion, students should be able to read and interpret wiring diagrams and determine/perform needed repairs on chassis electrical and electronic systems.

AUT 171 Heating and Air Conditioning 2 3 0 3
 Prerequisites: AUT 162
 Corequisites: None
 This course covers the theory of refrigeration and heating, electrical/electronic/pneumatic controls, and diagnosis/repair of climate control systems. Topics include diagnosis and repair of climate control components and systems, recovery/recycling of refrigerants, and safety and environmental regulations. Upon completion, students should be able to describe the operation, diagnose, and safely service climate control systems using appropriate tools, equipment, and service information.

AUT 185 Emission Controls 1 2 0 2
 Prerequisites: AUT 110, AUT 115, AUT 116, AUT 131, AUT 132, AUT 141, AUT 151, AUT 152, AUT 161, AUT 162, AUT 222, AUT 281, AUT 282, AUT 284
 Corequisites: None
 This course covers the design and function of emission control devices. Topics include chemistry of combustion as well as design characteristics and emission control devices that limit tailpipe, crankcase, and evaporative emissions. Upon completion, students should be able to troubleshoot, test, and service emission control systems.

AUT 222 Advanced Automotive Drive Trains 2 2 0 3
 Prerequisites: AUT 131, AUT 132, AUT 161, AUT 162, AUT 281, AUT 282
 Corequisites: None
 This course covers advanced diagnosis and repair of automatic drive trains. Topics include testing of sensors, actuators, and control modules using on-board diagnostics, appropriate service information, and equipment. Upon completion, students should be able to perform advanced automatic drive train diagnosis and repair.

AUT 276 ASE Certifications and Applications 3 9 0 6
 Prerequisites: AUT 110, AUT 115, AUT 116, AUT 131, AUT 132, AUT 141, AUT 151, AUT 152, AUT 161, AUT 162, AUT 171, AUT 222, AUT 281, AUT 282, AUT 284
 Corequisites: None
 This course includes a comprehensive overview of all vehicle systems with emphasis on diagnostics, service and repair. Topics include all areas of Automotive Service Excellence (ASE) Certifications through the advance levels. Upon completion, students should be able to assume duties in the automotive industry and be qualified to take ASE certification tests.

AUT 281 Advanced Engine Performance 2 2 0 3
 Prerequisites: AUT 162
 Corequisites: AUT 161, AUT 282
 This course utilizes service information and specialized test equipment to diagnose/repair power train control systems. Topics include computerized ignition, fuel and emission systems, related diagnostic tools and equipment, data communication networks, and service information. Upon completion, students should be able to perform advanced engine performance diagnosis and repair.

AUT 282 Engine Electrical Management 3 9 0 6
 Prerequisites: AUT 162
 Corequisites: AUT 161, AUT 281
 This course includes principles, systems, and procedures required for diagnosing and restoring engine performance/driveability and emission control through mechanical, electrical, and gas analysis. Emphasis is placed on diagnostics using mechanical, electrical (including on-board), and gas analysis to determine root causes for repair purposes. Upon completion, students should be able to diagnose and repair PCM-related engine performance/driveability and emission problems.

AUT 284 Emerging Automotive Technologies 2 6 0 4
 Prerequisites: AUT 115, AUT 116, AUT 131, AUT 132, AUT 141, AUT 151, AUT 152, AUT 161, AUT 162, AUT 281, AUT 282
 Corequisites: None
 This course covers emerging technologies in the automotive industry and the diagnostics associated with those technologies. Topics include exploring new technologies, diagnostic tools and methods, and repairs. Upon completion, students should be able to understand emerging automotive technologies.

B

BAF 235 Analyzing Financial Statements 3 0 0 3
 Prerequisites: ACC 120
 Corequisites: None
 This course provides practice in constructing and analyzing long-range, multiple-year forecasts of income statements and balance sheets, and cash budgets. Topics include trend, ratio, common size, comparative analysis, programs, projections, and cash budgets. Upon completion, students should be able to analyze income statements, balance sheets, and *pro forma* statements.

BIO 094 Concepts of Human Biology 3 2 0 4
 Prerequisites: None
 Corequisites: RED 090
 This course focuses on fundamental concepts of human biology. Topics include terminology, biochemistry, cell biology, tissues, body systems, and other related topics. Upon completion, students should be able to demonstrate preparedness for college-level anatomy and physiology courses.

BIO 106 Introduction to Anatomy/Physiology/Microbiology 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the fundamental and principle concepts of human anatomy and physiology and microbiology. Topics include an introduction to the structure and function of cells, tissues, and human organ systems, and an overview of microbiology, epidemiology, and control of microorganisms. Upon completion, students should be able to identify structures and functions of the human body and describe microorganisms and their significance in health and disease.

BIO 110 Principles of Biology 3 3 0 4
 Prerequisites: ENG 090, and MAT 070, and RED 090
 Corequisites: None
 This course provides a survey of fundamental biological principles for non-science majors. Emphasis is placed on basic chemistry, cell biology, metabolism, genetics, taxonomy, evolution, ecology, diversity, and other related topics. Upon completion, students should be able to demonstrate increased knowledge and better understanding of biology as it applies to everyday life. Laboratory exercises are designed to illustrate the basic principles presented in lecture.

BIO 111 General Biology I 3 3 0 4
 Prerequisites: ENG 090, MAT 070, RED 090, or placement
 Corequisites: None
 This course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, cell structure and function, metabolism and energy transformation, genetics, evolution, classification, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels. This course is the first in a two-semester series intended for science majors.

BIO 112 General Biology II 3 3 0 4
 Prerequisites: BIO 111
 Corequisites: None
 This course is a continuation of BIO 111. Emphasis is placed on organisms, biodiversity, plant and animal systems, ecology, and other related topics. Upon completion, students should be able to demonstrate comprehension of life at the organismal and ecological levels. This course is the second in a two-semester series intended for science majors.

BIO 120 Introductory Botany 3 3 0 4
 Prerequisites: BIO 110 or BIO 111
 Corequisites: None
 This course provides an introduction to the classification, relationships, structure, and function of plants. Topics include reproduction and development of seed and non-seed plants, levels of organization, form and function of systems, and a survey of major taxa. Upon completion, students should be able to demonstrate comprehension of plant form and function, including selected taxa of both seed and non-seed plants. Laboratory exercises are correlated with lecture topics.

BIO 130 Introductory Zoology 3 3 0 4
 Prerequisites: BIO 110 or BIO 111
 Corequisites: None
 This course provides an introduction to the classification, relationships, structure, and function of major animal phyla. Emphasis is placed on levels of organization, reproduction and development, comparative systems, and a survey of selected phyla. Upon completion, students should be able to demonstrate comprehension of animal form and function including comparative systems of selected groups. The evolutionary relatedness of the organisms studied will be emphasized.

BIO 140 Environmental Biology 3 0 0 3
 Prerequisites: BIO 110 or BIO 111
 Corequisites: BIO 140A
 This course introduces environmental processes and the influence of human activities upon them. Topics include ecological concepts, population growth, natural resources, and a focus on current environmental problems from scientific, social, political, and economic perspectives. Upon completion, students should be able to demonstrate an understanding of environmental interrelationships and of contemporary environmental issues. Individual action as part of the solution to regional environmental problems is stressed.

BIO 140A Environmental Biology Lab 0 3 0 1
 Prerequisites: BIO 110 or BIO 111
 Corequisites: BIO 140
 This course provides a laboratory component to complement BIO 140. Emphasis is placed on laboratory and field experience. Upon completion, students should be able to demonstrate a practical understanding of environmental interrelationships and of contemporary environmental issues. Environmentally responsible behavior at the individual level is investigated.

BIO 145 Ecology 3 3 0 4
 Prerequisites: BIO 110 or BIO 111
 Corequisites: None
 This course provides an introduction to ecological concepts using an ecosystems approach. Topics include energy flow, nutrient cycling, succession, population dynamics, community structure, and other related topics. Upon completion, students should be able to demonstrate comprehension of basic ecosystem structure and dynamics. The laboratory component of this course provides an introduction to basic field techniques used in modern ecological research.

BIO 150 Genetics in Human Affairs 3 0 0 3
 Prerequisites: BIO 110 or BIO 111
 Corequisites: None
 This course describes the importance of genetics in everyday life. Topics include the role of genetics in human development, birth defects, cancer and chemical exposure, and current issues including genetic engineering and fertilization methods. Upon completion, students should be able to understand the relationship of genetics to society today and its possible influence on our future. Through the analysis of current topics in genetics, students will develop skills in reading scientific articles and in compiling information into written and oral communications.

BIO 155 Nutrition 3 0 0 3
 Prerequisites: CHM 090 or equivalent
 Corequisites: None
 This course covers the biochemistry of foods and nutrients with consideration of the physiological effects of specialized diets for specific biological needs. Topics include cultural, religious, and economic factors that influence a person's acceptance of food as well as nutrient requirements of the various life stages. Upon completion, students should be able to identify the functions and sources of nutrients, the mechanisms of digestion, and the nutritional requirements of all age groups.

BIO 160 Introductory Life Sciences 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces scientific and biological concepts. Topics include basic chemistry, cell structure and function, cell division, basic genetic concepts, anatomical terminology, and metric-English measurements and conversions. Upon completion, students should be able to demonstrate an understanding of basic chemistry, cell biology, genetic concepts; anatomical terminology; and metric-English measurements and conversions.

BIO 161 Introduction to Human Biology 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides a basic survey of human biology. Emphasis is placed on the basic structure and function of body systems and the medical terminology used to describe normal and pathological states. Upon completion, students should be able to demonstrate an understanding of normal anatomy and physiology and the appropriate use of medical terminology.

BIO 163 Basic Anatomy and Physiology 4 2 0 5
 Prerequisites: CHM 090 or equivalent
 Corequisites: None
 This course provides a basic study of the structure and function of the human body. Topics include a basic study of the body systems as well as an introduction to homeostasis, cells, tissues, nutrition, acid-base balance, and electrolytes. Upon completion, students should be able to demonstrate a basic understanding of the fundamental principles of anatomy and physiology and their interrelationships.

BIO 165 Anatomy and Physiology I 3 3 0 4
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course is the first of a two-course sequence which provides a comprehensive study of the anatomy and physiology of the human body. Topics include the structure, function, and interrelationship of organ systems with emphasis on the processes which maintain homeostasis. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships.

BIO 166 Anatomy and Physiology II 3 3 0 4
 Prerequisites: BIO 165
 Corequisites: None
 This course is the second in a two-course sequence which provides a comprehensive study of the anatomy and physiology of the human body. Topics include the structure, function, and interrelationship of organ systems with emphasis on the processes which maintain homeostasis. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and the interrelationships of all body systems.

BIO 168 Anatomy and Physiology I 3 3 0 4
 Prerequisites: BIO 110 or BIO 111
 Corequisites: None
 This course provides a comprehensive study of the anatomy and physiology of the human body. Topics include body organization, homeostasis, cytology, histology, and the integumentary, skeletal, muscular, nervous systems, and special senses. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. Laboratory exercises will include investigation of structural and functional aspects of the indicated organ systems.

BIO 169 Anatomy and Physiology II 3 3 0 4
 Prerequisites: BIO 168
 Corequisites: None
 This course provides a continuation of the comprehensive study of the anatomy and physiology of the human body. Topics include the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems as well as metabolism, nutrition, acid-base balance, and fluid and electrolyte balance. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. Laboratory exercises will include investigation of structural and functional aspects of the indicated organ systems.

BIO 175 General Microbiology 2 2 0 3
 Prerequisites: BIO 163 or BIO 166
 Corequisites: None
 This course covers principles of microbiology with emphasis on microorganisms and human disease. Topics include an overview of microbiology and aspects of medical microbiology, identification and control of pathogens, disease transmission, host resistance, and immunity. Upon completion, students should be able to demonstrate knowledge of microorganisms and the disease process as well as aseptic and sterile techniques.

BIO 180 Biological Chemistry 2 2 0 3
 Prerequisites: BIO 110 or BIO 111
 Corequisites: None
 This course provides an introduction to basic biochemical processes in living systems. Topics include properties of carbohydrates, lipids, proteins, nucleic acids, vitamins, and buffers, with emphasis on biosynthesis, degradation, function, and equilibrium. Upon completion, students should be able to demonstrate an understanding of fundamental biochemical concepts. Laboratory exercises will complement the basic principles presented in lecture.

BIO 230 Entomology 3 3 0 4
 Prerequisites: BIO 112
 Corequisites: None
 This course covers the biology of insects. Topics include harmful and beneficial insects, their identification, classification, life cycles, behavior, distribution, economic importance, and the methods involved in collection and preservation. Upon completion, students should be able to identify common insects and describe their biology and ecology.

BIO 231 Invertebrate Zoology 3 3 0 4
 Prerequisites: BIO 112
 Corequisites: None
 This course introduces the principles of invertebrate animal biology. Emphasis is placed on the diversity, comparative anatomy, reproduction, development, behavior, ecology, evolution, and the importance of the major invertebrate phyla. Upon completion, students should be able to demonstrate knowledge of life at the invertebrate level. Modern evolutionary theory is used to interpret the relationships among the organisms studied in this course.

BIO 232 Vertebrate Zoology 3 3 0 4
 Prerequisites: BIO 112
 Corequisites: None
 This course introduces the principles of animal biology of the chordate phylum. Emphasis is placed on the diversity, morphology, reproduction, development, behavior, ecology, evolution, and importance of the chordates. Upon completion, students should be able to demonstrate increased knowledge and comprehension of zoology as it applies to life. Local species are emphasized in the laboratory component of this course.

BIO 242 Natural Resources Conservation 3 0 0 3
 Prerequisites: BIO 112
 Corequisites: None
 This course describes the importance of natural resources and their role in our environment. Emphasis is placed on the physical, biological, and ecological principles underlying natural resource conservation with attention to the biological consequences of human impacts. Upon completion, students should be able to demonstrate an understanding of natural resource conservation. Local environmental issues dealing with resource conservation are emphasized.

BIO 243 Marine Biology 3 3 0 4
 Prerequisites: BIO 110 or BIO 111
 Corequisites: None
 This course covers the physical and biological components of the marine environment. Topics include major habitats, the diversity of organisms, their biology and ecology, marine productivity, and the use of marine resources by humans. Upon completion, students should be able to identify various marine habitats and organisms and to demonstrate a knowledge of their biology and ecology.

BIO 250 Genetics 3 3 0 4
 Prerequisites: BIO 112
 Corequisites: None
 This course covers principles of prokaryotic and eukaryotic cell genetics. Emphasis is placed on the molecular basis of heredity, chromosome structure, patterns of Mendelian and non-Mendelian inheritance, evolution, and biotechnological applications. Upon completion, students should be able to recognize and describe genetic phenomena and demonstrate knowledge of important genetic principles.

BIO 271 Pathophysiology 3 0 0 3
 Prerequisites: BIO 163 or BIO 166
 Corequisites: None
 This course provides an in-depth study of human pathological processes and their effects on homeostasis. Emphasis is placed on interrelationships among organ systems in deviations from homeostasis. Upon completion, students should be able to demonstrate a detailed knowledge of pathophysiology.

BIO 275 Microbiology 3 3 0 4
 Prerequisites: BIO 110, BIO 112, BIO 163 or BIO 165 or BIO 168
 Corequisites: None
 This course covers principles of microbiology and the impact these organisms have on man and the environment. Topics include the various groups of microorganisms, their structure, physiology, genetics, microbial pathogenicity, infectious diseases, immunology, and selected practical applications. Upon completion, students should be able to demonstrate knowledge and skills including microscopy, aseptic technique, staining, culture methods, and identification of microorganisms.

BPR 111 Blueprint Reading 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the basic principles of blueprint reading. Topics include line types, orthographic projections, dimensioning methods, and notes. Upon completion, students should be able to interpret basic blueprints and visualize the features of a part.

BPR 121 Blueprint Reading: Mechanical 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course covers the interpretation of intermediate blueprints. Topics include tolerancing, auxiliary views, sectional views, and assembly drawings. Upon completion, students should be able to read and interpret a mechanical working drawing.

BPR 130 Blueprint Reading/ Construction	1	2	0	2
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Prerequisites: None
Corequisites: None
This course covers the interpretation of blueprints and specifications that are associated with the construction trades. Emphasis is placed on interpretation of details for foundations, floor plans, elevations, and schedules. Upon completion, students should be able to read and interpret a set of construction blueprints.

BUS 110 Introduction to Business	3	0	0	3
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Prerequisites: ENG 090
Corequisites: None
This course provides a survey of the business world. Topics include the basic principles and practices of contemporary business. Upon completion, students should be able to demonstrate an understanding of business concepts as a foundation for studying other business subjects.

BUS 115 Business Law I	3	0	0	3
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Prerequisites: None
Corequisites: None
This course introduces the ethics and legal framework of business. Emphasis is placed on contracts, negotiable instruments, Uniform Commercial Code, and the working of the court systems. Upon completion, students should be able to apply ethical issues and laws covered to selected business decision-making situations.

BUS 116 Business Law II	3	0	0	3
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Prerequisites: BUS 115
Corequisites: None
This course continues the study of ethics and business law. Emphasis is placed on bailments, sales, risk-bearing, forms of business ownership, and copyrights. Upon completion, students should be able to apply ethical issues and laws covered to selected business decision-making situations.

BUS 121 Business Math	2	2	0	3
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Prerequisites: MAT 060
Corequisites: None
This course covers fundamental mathematical operations and their application to business problems. Topics include payroll, pricing, interest and discount, commission, taxes, and other pertinent uses of mathematics in the field of business. Upon completion, students should be able to apply mathematical concepts to business.

BUS 125 Personal Finance	3	0	0	3
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Prerequisites: None
Corequisites: None
This course provides a study of individual and family financial decisions. Emphasis is placed on building useful skills in buying, managing finances, increasing resources, and coping with current economic conditions. Upon completion, students should be able to develop a personal financial plan.

BUS 137 Principles of Management	3	0	0	3
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Prerequisites: BUS 230
Corequisites: None
This course is designed to be an overview of the major functions of management. Emphasis is placed on planning, organizing, controlling, directing, and communicating. Upon completion, students should be able to work as contributing members of a team utilizing these functions of management.

BUS 147 Business Insurance	3	0	0	3
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Prerequisites: None
Corequisites: None
This course surveys the basic concepts of risk management. Topics include principles and applications of health, property, life, and casualty insurance. Upon completion, students should be able to evaluate different insurance needs and assist an organization in acquiring adequate insurance coverage.

BUS 151 People Skills	3	0	0	3
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Prerequisites: None
Corequisites: None
This course introduces the basic concepts of identity and communication in the business setting. Topics include self-concept, values, communication styles, feelings and emotions, roles versus relationships, and basic assertiveness, listening, and conflict resolution. Upon completion, students should be able to distinguish between unhealthy, self-destructive, communication patterns and healthy, non-destructive, positive communication patterns.

BUS 153 Human Resource Management	3	0	0	3
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Prerequisites: None
Corequisites: None
This course introduces the functions of personnel/human resource management within an organization. Topics include equal opportunity and the legal environment, recruitment and selection, performance appraisal, employee development, compensation planning, and employee relations. Upon completion, students should be able to anticipate and resolve human resource concerns.

BUS 193 Selected Topics in Business Administration	-	-	-	3
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Prerequisites: MKT 120
Corequisites: None
This course provides an opportunity to explore areas of current interest in business topics. Emphasis is placed on subject matter appropriate to business. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

BUS 217 Employment Law and Regulations	3	0	0	3
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Prerequisites: None
Corequisites: None
This course introduces the principle laws and regulations affecting public and private organizations and their employees or prospective employees. Topics include fair employment practices, EEO, affirmative action, and employee rights and protections. Upon completion, students should be able to evaluate organization policy for compliance and assure that decisions are not contrary to law.

BUS 225 Business Finance	2	2	0	3
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Prerequisites: ACC 120
Corequisites: None
This course provides an overview of business financial management. Emphasis is placed on financial statement analysis, time value of money, management of cash flow, risk and return, and sources of financing. Upon completion, students should be able to interpret and apply the principles of financial management.

BUS 228 Business Statistics 2 2 0 3
 Prerequisites: ENG 090, RED 090; and
 MAT 115, MAT 140, or MAT 161
 Corequisites: None
 This course introduces the use of statistical methods and tools in evaluating research data for business applications. Emphasis is placed on basic probability, measures of spread and dispersion, central tendency, sampling, regression analysis, and inductive inference. Upon completion, students should be able to apply statistical problem solving to business.

BUS 230 Small Business Management 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the challenges of entrepreneurship including the startup and operation of a small business. Topics include market research techniques, feasibility studies, site analysis, financing alternatives, and managerial decision making. Upon completion, students should be able to develop a small business plan.

BUS 234 Training and Development 3 0 0 3
 Prerequisites: BUS 153
 Corequisites: None
 This course covers developing, conducting, and evaluating employee training with attention to adult learning principles. Emphasis is placed on conducting a needs assessment, using various instructional approaches, designing the learning environment, and locating learning resources. Upon completion, students should be able to design, conduct, and evaluate a training program.

BUS 239 Business Applications Seminar 1 2 0 2
 Prerequisites: ACC 120, ACC 121, BUS 115, BUS 116, BUS 137, ECO 151, ENG 114, MAT 115, MKT 120, MKT 221
 Corequisites: None
 This course is designed as a capstone course for Business Administration majors. Emphasis is placed on decision making in the areas of management, marketing, production, purchasing, and finance. Upon completion, students should be able to apply the techniques, processes, and vital professional skills needed in the work place.

BUS 254 Advanced People Skills 3 0 0 3
 Prerequisites: BUS 151
 Corequisites: None
 This course provides an advanced study of the concepts included in BUS 151. Topics include causes for communication breakdown, behavior styles, and advanced techniques for assertiveness and conflict resolution in the business environment. Upon completion, students should be able to recognize and handle conflict situations and the difficult people who create them.

BUS 256 Recruitment, Selection, and Personnel Planning 3 0 0 3
 Prerequisites: BUS 153
 Corequisites: None
 This course introduces the basic principles involved in managing the employment process. Topics include personnel planning, recruiting, interviewing and screening techniques, maintaining employee records; and voluntary and involuntary separations. Upon completion, students should be able to acquire and retain employees who match position requirements and fulfill organizational objectives.

BUS 258 Compensation and Benefits 3 0 0 3
 Prerequisites: BUS 153
 Corequisites: None
 This course is designed to study the basic concepts of pay and its role in rewarding performance. Topics include wage and salary surveys, job analysis, job evaluation techniques, benefits, and pay-for-performance programs. Upon completion, students should be able to develop and manage a basic compensation system to attract, motivate, and retain employees.

BUS 259 HRM Applications 3 0 0 3
 Prerequisites: BUS 217, BUS 234, BUS 256, BUS 258
 Corequisites: None
 This course provides students in the Human Resource Management concentration the opportunity to reinforce their learning experiences from preceding HRM courses. Emphasis is placed on application of day-to-day HRM functions by completing in-basket exercises and through simulations. Upon completion, students should be able to determine the appropriate actions called for by typical events that affect the status of people at work.

BUS 260 Business Communication 3 0 0 3
 Prerequisites: ENG 111, OST 136, OST 164
 Corequisites: None
 This course is designed to develop skills in writing business communications. Emphasis is placed on business reports, correspondence, and professional presentations. Upon completion, students should be able to communicate effectively in the work place.

BUS 285 Business Management Issues 2 2 0 3
 Prerequisites: BUS 137
 Corequisites: None
 This course covers contemporary issues that affect successful businesses and their managers and employees. Emphasis is placed on using case studies and exercises to develop analytical and problem-solving skills, ethics, quality management concepts, team skills, and effective communication. Upon completion, students should be able to apply the specific knowledge and skills covered to become more effective managers and employees.

C

CAT 210 CT Physics and Equipment 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the system operations and components, image processing and display, image quality, and artifacts in computed tomography. Emphasis is placed on the data acquisition components, tissue attenuation conversions, image manipulation, and factors controlling image resolution. Upon completion, students should be able to understand the physics and instrumentation used in computed tomography.

CAT 211 CT Procedures	4	0	0	4
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Prerequisites: None
Corequisites: CAT 210
This course is designed to cover specialized patient care, cross-sectional anatomy, contrast media, and scanning procedures in computed tomography. Emphasis is placed on patient assessment and monitoring, contrast agents' use, radiation safety, methods of data acquisition, and identification of cross-sectional anatomy. Upon completion, students should be able to integrate all facets of the imaging procedures in computed tomography.

CAT 231 CT Clinical Practicum	0	0	33	11
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Prerequisites: None
Corequisites: None
This course provides the opportunity to apply knowledge gained from classroom instruction to the computed tomography clinical setting. Emphasis is placed on patient care and positioning, scanning procedures, and image production in computed tomography. Upon completion, students should be able to assume a variety of duties and responsibilities within the computed tomography clinical environment.

CET 111 Computer Upgrade/Repair I	2	3	0	3
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Prerequisites: None
Corequisites: None
This course is the first of two courses covering repairing, servicing, and upgrading computers and peripherals in preparation for industry certification. Topics include safety practices, CPU/memory/bus identification, disk subsystem, hardware/software installation/configuration, common device drivers, data recovery, system maintenance, and other related topics. Upon completion, students should be able to safely repair and/or upgrade computer systems to perform within specifications.

CET 193 Selected Topics in Computer Engineering Technology	-	-	-	3
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Prerequisites: Varies, based on topic
Corequisites: None
This course provides an opportunity to explore areas of current interest in Computer Engineering Technology. Emphasis is placed on subject matter appropriate to computer engineering technology. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CET 211 Computer Upgrade/Repair II	2	3	0	3
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Prerequisites: CET 111
Corequisites: None
This course is the second of two courses covering repairing, servicing, and upgrading computers and peripherals in preparation for industry certification. Topics include resolving resource conflicts and system bus specifications, configuration and troubleshooting peripherals, operating system configuration and optimization, and other related topics. Upon completion, students should be able to identify and resolve system conflicts and optimize system performance.

CET 222 Computer Architecture	2	0	0	2
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Prerequisites: None
Corequisites: None
This course introduces the organization and design philosophy of computer systems with respect to resource management, throughput, and operating system interaction. Topics include instruction sets, registers, data types, memory management, virtual memory, cache, storage management, multi-processing, and pipelining. Upon completion, students should be able to evaluate system hardware and resources for installation and configuration purposes.

CET 225 Digital Signal Processing	2	2	0	3
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Prerequisites: None
Corequisites: None
This course covers the theory and use of digital signal processing techniques. Topics include Fourier analysis, digital filtering, Z transforms, IIR, FIR, convolution, pulse methods, and DSP programming. Upon completion, students should be able to implement and troubleshoot DSP systems in hardware and software.

CET 251 Software Engineering Principles	3	3	0	4
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Prerequisites: CSC 133 or CSC 134
Corequisites: None
This course introduces the methodology used to manage the development process for complex software systems. Topics include the software life cycle, resource allocation, team dynamics, design techniques, and tools that support these activities. Upon completion, students should be able to design and build robust software in a team setting.

CHM 090 Chemistry Concepts	4	0	0	4
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Prerequisites: ENG 090, MAT 070, RED 090
Corequisites: None
This course provides a non-laboratory based introduction to basic concepts of chemistry. Topics include measurements, matter, energy, atomic theory, bonding, molecular structure, nomenclature, balancing equations, stoichiometry, solutions, acids and bases, gases, and basic organic chemistry. Upon completion, students should be able to understand and apply basic chemical concepts necessary for success in college-level science courses.

CHM 092 Fundamentals of Chemistry	3	2	0	4
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Prerequisites: ENG 090, MAT 070, RED 090
Corequisites: None
This course covers fundamentals of chemistry with laboratory applications. Topics include measurements, matter, energy, atomic theory, bonding, molecular structure, nomenclature, balancing equations, stoichiometry, solutions, acids and bases, gases, and basic organic chemistry. Upon completion, students should be able to understand and apply basic chemical concepts and demonstrate basic laboratory skills necessary for success in college-level science courses.

CHM 130 General, Organic, and Biochemistry	3	0	0	3
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Prerequisites: ENG 090, MAT 070, RED 090
Corequisites: None
This course provides a survey of basic facts and principles of general, organic, and biochemistry. Topics include measurement, molecular structure, nuclear chemistry, solutions, acid-base chemistry, gas laws, and the structure, properties, and reactions of major organic and biological groups. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts.

CHM 131 Introduction to Chemistry	3	0	0	3
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Prerequisites: ENG 090, RED 090
Corequisites: CHM 131A
This course introduces the fundamental concepts of inorganic chemistry. Topics include measurement, matter and energy, atomic and molecular structure, nuclear chemistry, stoichiometry, chemical formulas and reactions, chemical bonding, gas laws, solutions, and acids and bases. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields.

CHM 131A Introduction to Chemistry Lab	0	3	0	1
Prerequisites: ENG 090, RED 090 Corequisites: CHM 131 This course is a laboratory to accompany CHM 131. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 131. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 131.				
CHM 132 Organic and Biochemistry	3	3	0	4
Prerequisites: CHM 131 Corequisites: None This course provides a survey of major functional classes of compounds in organic and biochemistry. Topics include structure, properties, and reactions of the major organic and biological molecules and basic principles of metabolism. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts needed to pursue studies in related professional fields.				
CHM 151 General Chemistry I	3	3	0	4
Prerequisites: ENG 090, RED 090; and MAT 161 or MAT 171 Corequisites: None This course covers fundamental principles and laws of chemistry. Topics include measurement, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, gas laws, and solutions. Upon completion, students should be able to demonstrate an understanding of fundamental chemical laws and concepts as needed in CHM 152. Students will develop laboratory techniques and learn how to effectively communicate experimental results in written reports.				
CHM 152 General Chemistry II	3	3	0	4
Prerequisites: CHM 151 Corequisites: None This course provides a continuation of the study of the fundamental principles and laws of chemistry. Topics include kinetics, equilibrium, ionic and redox equations, acid-base theory, electrochemistry, thermodynamics, introduction to nuclear and organic chemistry, and complex ions. Upon completion, students should be able to demonstrate an understanding of chemical concepts as needed to pursue further study in chemistry and related professional fields. Students will develop laboratory skills learned in CHM 151 and give and oral presentation on a chemically relevant subject.				
CHM 251 Organic Chemistry I	3	3	0	4
Prerequisites: CHM 152 Corequisites: None This course provides a systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of hydrocarbons, alkyl halides, alcohols, and ethers; further topics include isomerization, stereochemistry, and spectroscopy. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts of covered organic topics as needed in CHM 252. Students will perform basic synthetic and analytic techniques on organic compounds.				

CHM 252 Organic Chemistry II	3	3	0	4
Prerequisites: CHM 251 Corequisites: None This course provides continuation of the systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of aromatics, aldehydes, ketones, carboxylic acids and derivatives, amines and heterocyclics; multi-step synthesis will be emphasized. Upon completion, students should be able to demonstrate an understanding of organic concepts as needed to pursue further study in chemistry and related professional fields. Students will conduct a multi-step synthetic scheme in the laboratory component.				
CHM 261 Quantitative Analysis	2	6	0	4
Prerequisites: CHM 152 Corequisites: None This course introduces classical methods of chemical analysis with an emphasis on laboratory techniques. Topics include statistical data treatment; stoichiometric and equilibrium calculations; and titrimetric, gravimetric, acid-base, oxidation-reduction, and compleximetric methods. Upon completion, students should be able to perform classical quantitative analytical procedures.				
CIS 001 Microcomputer Skills Lab	-	-	-	-
Prerequisites: None Corequisites: None Designed to support the technical microcomputer courses by offering supplementary assistance in various software programs such as computer keyboarding, word processing and programming.				
CIS 070 Fundamentals of Computing	0	2	0	1
Prerequisites: None Corequisites: None This course covers fundamental functions and operations of the computer. Topics include identification of components, overview of operating systems, and other basic computer operations. Upon completion, students should be able to operate computers, access files, print documents and perform basic applications operations.				
CIS 110 Introduction to Computers	2	2	0	3
Prerequisites: RED 090 Corequisites: None This course provides an introduction to computers and computing. Topics include the impact of computers on society, ethical issues, and hardware/software applications, including spreadsheets, databases, word processors, graphics, the Internet, and operating systems. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems.				
CIS 111 Basic PC Literacy	1	2	0	2
Prerequisites: RED 080 Corequisites: None This course provides a brief overview of computer concepts. Emphasis is placed on the use of personal computers and software applications for personal and workplace use. Upon completion, students should be able to demonstrate basic personal computer skills.				

CIS 115	Introduction to Programming and Logic	2	2	0	3
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Prerequisites: MAT 070, RED 090
Corequisites: None
This course introduces computer programming and problem solving in a programming environment, including an introduction to operating systems, text editor, and a language translator. Topics include language syntax, data types, program organization, problem-solving methods, algorithm design, and logic control structures. Upon completion, students should be able to manage files with operating system commands, use top-down algorithm design, and implement algorithmic solutions in a programming language.

CIS 118	See CTS 118.				
CIS 120	See CTS 130..				
CIS 121	See CTS 250.				
CIS 122	Introduction to Business Computers	2	2	0	3

Prerequisites: CIS 110 or CIS 111
Corequisites: None
This course provides preparation in solving business problems using computers. Topics include hardware and software concepts, the DOS operating system, Windows, spreadsheets, and communications. Upon completion, students should be able to use DOS commands, navigate a Windows environment, use spreadsheet capabilities, and access information in a business environment.

CIS 130	See NOS 110.				
CIS 135	See CTS 120.				
CIS 143	See WEB 186.				
CIS 144	See NOS 111.				
CIS 145	See NOS 130.				
CIS 147	See NOS 230.				
CIS 152	See DBA 110.				
CIS 153	See DBA 115.				
CIS 154	See DBA 112.				
CIS 155	Database Theory/ Analysis	2	2	0	3

Prerequisites: CIS 152 or CIS 157
Corequisites: None
This course introduces database design theories and analyses. Emphasis is placed on data dictionaries, normalization, data integrity, and data modeling. Upon completion, students should be able to design normalized database structures that exhibit data integrity.

CIS 157	See DBA 120.				
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CIS 162	MM Presentation Software	2	2	0	3
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Prerequisites: None
Corequisites: None
This course is designed to integrate visual and audio resources using presentation software in a simple interactive multimedia project. Emphasis is placed upon design and audience considerations, general prototyping, and handling of media resources. Upon completion, students should be able to demonstrate an original interactive multimedia presentation implementing all of these resources in a professional manner.

CIS 163	Programming Interfaces Internet	2	2	0	3
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Prerequisites: CIS 110 or CIS 111, CIS 172 or CSC 160
Corequisites: None
This course creates interactive multimedia applications and applets for the Internet using web-specific languages. Emphasis is placed on audio, video, graphic, and network resources and various file formats. Upon completion, students should be able to create an interactive multimedia application or applet for the Internet.

CIS 165	Desktop Publishing I	2	2	0	3
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Prerequisites: CIS 110 or CIS 111
Corequisites: None
This course provides an introduction to desktop publishing software capabilities. Emphasis is placed on efficient use of a page layout software package to create, design, and print publications; hardware/software compatibility; and integration of specialized peripherals. Upon completion, students should be able to prepare publications given design specifications.

CIS 166	Desktop Publishing II	2	2	0	3
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Prerequisites: CIS 165
Corequisites: None
This course provides advanced training in the use of a variety of desktop publishing software. Emphasis is placed on evaluation of software and hardware available for desktop publishing. Upon completion, students should be able to create and design complex publications using a variety of page layout software.

CIS 169	See CTS 125.				
CIS 170	See CTS 155.				
CIS 171	See CTS 255.				
CIS 172	See WEB 110.				
CIS 175	See NOS 231.				
CIS 192	Selected Topics in Information Systems	-	-	-	2

Prerequisites: Varies, based on topic
Corequisites: None
This course provides an opportunity to explore areas of current interest in information systems. Emphasis is placed on subject matter appropriate to information systems. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CIS 193 Selected Topics in Information Systems: - - - 3
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in information systems. Emphasis is placed on subject matter appropriate to information systems. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CIS 198 Seminar: Computer Forensics 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Computer Forensics. Emphasis is placed on the development of critical listening skills and the presentation of computer investigation and data acquisition issues. Upon completion, students should be able to critically analyze issues and establish informed opinions as an entry-level computer forensic investigator.

CIS 210 See CTS 120.

CIS 215 Hardware Installation/Maintenance 2 3 0 3
 Prerequisites: CIS 110 or CIS 111 or CIS 115
 Corequisites: None
 This course covers the basic hardware of a personal computer, including operations and interactions with software. Topics include component identification, the memory system, peripheral installation and configuration, preventive maintenance, and diagnostics and repair. Upon completion, students should be able to select appropriate computer equipment, upgrade and maintain existing equipment, and troubleshoot and repair non-functioning personal computers.

CIS 216 See CTS 220.

CIS 217 See CTS 217.

CIS 219 Advanced PC Application Development 2 3 0 3
 Prerequisites: CIS 116
 Corequisites: None
 This course provides an advanced study of the principles of application development and end-user interface design principles. Emphasis is placed on advanced arrays/tables, file management, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design and program a PC application at the advanced level.

CIS 220 See CTS 230.

CIS 226 See CTS 287.

CIS 228 See CTS 240.

CIS 235 Advanced PC Diagnostic/Configuration 2 2 0 3
 Prerequisites: CIS 135 or CIS 215
 Corequisites: None
 A continuation of CIS 135, this course covers upgrading and repairing personal computers and peripherals. Topics include configuring and troubleshooting peripherals, installing device drivers, resolving resource conflicts, configuring and optimizing operating systems, and related topics. Upon completion, students should be able to install peripherals and upgrade personal computers components, diagnose problems, resolve resource conflict, and optimize system performance.

CIS 245 Operating System – Multi-User 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course includes operating systems concepts for multi-user systems. Topics include hardware management, file and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating system functions in a multi-user environment.

CIS 254 See DBA 210.

CIS 255 See DBA 230.

CIS 256 See DBA 240.

CIS 257 Database Programming II 2 2 0 3
 Prerequisites: CIS 157
 Corequisites: None
 This course is designed to enhance programming skills developed in CIS 157. Topics include application development with GUI front ends and embedded programming. Upon completion, students should be able to develop a DBMS application which includes a GUI front end and report generation.

CIS 258 See DBA 289.

CIS 260 Business Graphics Applications 2 2 0 3
 Prerequisites: CIS 110 or CIS 111
 Corequisites: None
 This course utilizes graphics software in a variety of business applications. Topics include terminology, design and evaluation, graphics formats and conversion, practical applications of graphics software, and integration of peripherals. Upon completion, students should be able to create and incorporate graphic designs to enhance business communications.

CIS 270 See CTS 270.

CIS 278 See CTS 289.

CIS 293 Selected Topics in Information Systems: FrontPage 2 2 0 3
 Prerequisites: CIS 110 or CIS 111
 Corequisites: CIS 172
 This course introduces the peripherals and attendant software needed to create stand-alone or networked interactive multimedia applications. Emphasis is placed on using audio, video, graphic, and resources; using peripheral-specific software; and understanding file formats. Upon completion, students should be able to utilize multimedia peripherals to create various sound and visual files to create a multimedia application.

CIS 297 Seminar in MCDST 1 2 0 2
 Prerequisites: CIS 116
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Microsoft Certified Desktop Support Technician (MCDST). Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

CIS 298 Seminar in Information Systems - - - 3
 Prerequisites: CIS 153
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Information Systems. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

CIV 110 Statics/Strength of Materials 2 6 0 4
 Prerequisites: MAT 121
 Corequisites: None
 This course includes vector analysis, equilibrium of force systems, friction, sectional properties, stress/strain, and deformation. Topics include resultants and components of forces, moments and couples, free-body diagrams, shear and moment diagrams, trusses, frames, beams, columns, connections, and combined stresses. Upon completion, students should be able to analyze simple structures.

CIV 111 Soils and Foundations 2 3 0 3
 Prerequisites: CIV 110 or MEC 250
 Corequisites: None
 This course presents an overview of soil as a construction material using both analysis and testing procedures. Topics include index properties, classification, stress analysis, compressibility, compaction, dewatering, excavation, stabilization, settlement, and foundations. Upon completion, students should be able to perform basic soil tests and analyze engineering properties of soil.

CIV 125 Civil/Surveying CAD 1 6 0 3
 Prerequisites: ARC 114 or DFT 111 or EGR 115
 Corequisites: None
 This course introduces civil/surveying computer-aided drafting (CAD) software. Topics include drawing, editing, and dimensioning commands; plotting; and other related civil/surveying topics. Upon completion, students should be able to produce civil/surveying drawings using CAD software. This course is an introduction to Land Development Desktop.

CIV 210 Engineering Materials 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course covers the behavior and properties of Portland cement and asphaltic concretes and laboratory and field testing. Topics include cementing agents and aggregates; water and admixtures; proportioning, production, placing, consolidation, and curing; and inspection methods. Upon completion, students should be able to proportion concrete mixes to attain predetermined strengths and other properties and perform standard control tests.

CIV 211 Hydraulics and Hydrology 2 3 0 3
 Prerequisites: CIV 110 or MEC 250
 Corequisites: None
 This course introduces the basic engineering principles and characteristics of hydraulics and hydrology. Topics include precipitation and runoff, fluid statics and dynamics, flow measurement, and pipe and open channel flow. Upon completion, students should be able to analyze and size drainage structures.

CIV 221 Steel and Timber Design 2 3 0 3
 Prerequisites: CIV 110 or MEC 250
 Corequisites: None
 This course introduces the basic elements of steel and timber structures. Topics include the analysis and design of steel and timber beams, columns, and connections and the use of appropriate manuals and codes. Upon completion, students should be able to analyze, design, and draw simple steel and timber structures.

CIV 230 Construction Estimating 2 3 0 3
 Prerequisites: ARC 111, ARC 114, CIS 110, CIS 111, DFT 111, or EGR 115
 Corequisites: None
 This course covers quantity take-offs of labor, materials, and equipment and calculation of direct and overhead costs for a construction project. Topics include the interpretation of working drawings and specifications, types of contracts and estimates, building codes, bidding techniques and procedures, and estimating software. Upon completion, students should be able to prepare a detailed cost estimate and bid documents for a construction project.

CIV 240 Project Management 2 3 0 3
 Prerequisites: ARC 114 or DFT 111 or EGR 115
 Corequisites: None
 This course introduces construction planning and scheduling techniques and project management software. Topics include construction safety, operation analysis, construction scheduling, construction control systems, claims and dispute resolutions, project records, and documentation. Upon completion, students should be able to demonstrate an understanding of the roles of construction project participants, maintain construction records, and prepare construction schedules.

CIV 250 Civil Engineering Technology Project 1 3 0 2
 Prerequisites: CIV 111, CIV 125, CIV 211, CIV 221, CIV 240, SRV 111
 Corequisites: None
 This course includes an integrated team approach to civil engineering technology projects. Emphasis is placed on project proposal, site selection, analysis/design of structures, construction material selection, time and cost estimating, planning, and management of a project. Upon completion, students should be able to apply team concepts, prepare estimates, submit bid proposals, and manage projects. This course introduces the student to GPS (Global Positioning Systems), methods, techniques, and theory; the student must use this knowledge as well as other knowledge acquired while at the college to perform a capstone project that will involve an oral presentation and written report to faculty, college officials, and a professional audience.

CJC 100 Basic Law Enforcement Training 8 30 0 18
 Prerequisites: None
 Corequisites: None
 This course covers the skills and knowledge needed for entry-level employment as a law enforcement officer in North Carolina. Emphasis is placed on topics and areas as defined by the North Carolina Administrative Code. Upon completion, students should be able to demonstrate competence in the topics and areas required for the state comprehensive examination.

CJC 111 Introduction to Criminal Justice	3	0	0	3
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Prerequisites: ENG 090, RED 090
Corequisites: None
This course introduces the components and processes of the criminal justice system. Topics include history, structure, functions, and philosophy of the criminal justice system and their relationship to life in our society. Upon completion, students should be able to define and describe the major system components and their interrelationships and evaluate career options.

CJC 112 Criminology	3	0	0	3
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Prerequisites: None
Corequisites: None
This course introduces deviant behavior as it relates to criminal activity. Topics include theories of crime causation; statistical analysis of criminal behavior; past, present, and future social control initiatives; and other related topics. Upon completion, students should be able to explain and discuss various theories of crime causation and societal response.

CJC 113 Juvenile Justice	3	0	0	3
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Prerequisites: None
Corequisites: None
This course covers the juvenile justice system and related juvenile issues. Topics include an overview of the juvenile justice system, treatment and prevention programs, special areas and laws unique to juveniles, and other related topics. Upon completion, students should be able to identify/discuss juvenile court structure/procedures, function and jurisdiction of juvenile agencies, processing/detention of juveniles, and case disposition.

CJC 114 Investigative Photography	1	2	0	2
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Prerequisites: None
Corequisites: None
This course covers the operation of various photographic equipment and its application to criminal justice. Topics include using various cameras, proper exposure of film, developing film/prints, and preparing photographic evidence. Upon completion, students should be able to demonstrate and explain the role of photography and proper film exposure and development techniques.

CJC 120 Interviews/Interrogations	1	2	0	2
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Prerequisites: None
Corequisites: None
This course covers basic and special techniques employed in criminal justice interviews and interrogations. Emphasis is placed on the interview/interrogation process, including interpretation of verbal and physical behavior and legal perspectives. Upon completion, students should be able to conduct interviews/interrogations in a legal, efficient, and professional manner and obtain the truth from suspects, witnesses, and victims.

CJC 121 Law Enforcement Operations	3	0	0	3
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Prerequisites: ENG 090, RED 090
Corequisites: None
This course introduces fundamental law enforcement operations. Topics include the contemporary evolution of law enforcement operations and related issues. Upon completion, students should be able to explain theories, practices, and issues related to law enforcement operations.

CJC 122 Community Policing	3	0	0	3
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Prerequisites: None
Corequisites: None
This course covers the historical, philosophical, and practical dimensions of community policing. Emphasis is placed on the empowerment of police and the community to find solutions to problems by forming partnerships. Upon completion, students should be able to define community policing, describe how community policing strategies solve problems, and compare community policing to traditional policing.

CJC 131 Criminal Law	3	0	0	3
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Prerequisites: None
Corequisites: None
This course covers the history/evolution/principles and contemporary applications of criminal law. Topics include sources of substantive law, classification of crimes, parties to crime, elements of crimes, matters of criminal responsibility, and other related topics. Upon completion, students should be able to discuss the sources of law and identify, interpret, and apply the appropriate statutes/elements.

CJC 132 Court Procedure and Evidence	3	0	0	3
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Prerequisites: None
Corequisites: None
This course covers judicial structure/process/procedure from incident to disposition, kinds and degrees of evidence, and the rules governing admissibility of evidence in court. Topics include consideration of state and federal courts, arrest, search and seizure laws, exclusionary and statutory rules of evidence, and other related issues. Upon completion, students should be able to identify and discuss procedures necessary to establish a lawful arrest/search, proper judicial procedures, and the admissibility of evidence.

CJC 141 Corrections	3	0	0	3
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Prerequisites: ENG 090, RED 090
Corequisites: None
This course covers the history, major philosophies, components, and current practices and problems of the field of corrections. Topics include historical evolution, functions of the various components, alternatives to incarceration, treatment programs, inmate control, and other related topics. Upon completion, students should be able to explain the various components, processes, and functions of the correctional system.

CJC 145 Crime Scene CAD	2	3	0	3
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Prerequisites: CIS 111
Corequisites: None
This course introduces the student to CAD software for crime scenes. Topics include drawing, editing, file management and drafting theory and practices. Upon completion, students should be able to produce and plot a crime scene drawing.

CJC 212 Ethics and Community Relations	3	0	0	3
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Prerequisites: None
Corequisites: None
This course covers ethical considerations and accepted standards applicable to criminal justice organizations and professionals. Topics include ethical systems; social change, values, and norms; cultural diversity; citizen involvement in criminal justice issues; and other related topics. Upon completion, students should be able to apply ethical considerations to the decision-making process in identifiable criminal justice situations.

CJC 213 Substance Abuse 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course is a study of substance abuse in our society. Topics include the history and classifications of drug abuse and the social, physical, and psychological impact of drug abuse. Upon completion, students should be able to identify various types of drugs, their effects on human behavior and society, and treatment modalities.

CJC 215 Organization and Administration 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the components and functions of organization and administration as it applies to the agencies of the criminal justice system. Topics include operations/functions of organizations; recruiting, training, and retention of personnel; funding and budgeting; communications; span of control and discretion; and other related topics. Upon completion, students should be able to identify and discuss the basic components and functions of a criminal justice organization and its administrative operations.

CJC 221 Investigative Principles 3 2 0 4
 Prerequisites: CJC 111
 Corequisites: None
 This course introduces the theories and fundamentals of the investigative process. Topics include crime scene/incident processing, information gathering techniques, collection/preservation of evidence, preparation of appropriate reports, court presentations, and other related topics. Upon completion, students should be able to identify, explain, and demonstrate the techniques of the investigative process, report preparation, and courtroom presentation.

CJC 222 Criminalistics 3 0 0 3
 Prerequisites: CJC 221
 Corequisites: None
 This course covers the functions of the forensic laboratory and its relationship to successful criminal investigations and prosecutions. Topics include advanced crime scene processing, investigative techniques, current forensic technologies, and other related topics. Upon completion, students should be able to identify and collect relevant evidence at simulated crime scenes and request appropriate laboratory analysis of submitted evidence.

CJC 223 Organized Crime 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the evolution of traditional and non-traditional organized crime and its effect on society and the criminal justice system. Topics include identifying individuals and groups involved in organized crime, areas of criminal activity, legal and political responses to organized crime, and other related topics. Upon completion, students should be able to identify the groups and activities involved in organized crime and the responses of the criminal justice system.

CJC 231 Constitutional Law 3 0 0 3
 Prerequisites: None
 Corequisites: None
 The course covers the impact of the Constitution of the United States and its amendments on the criminal justice system. Topics include the structure of the Constitution and its amendments, court decisions pertinent to contemporary criminal justice issues, and other related topics. Upon completion, students should be able to identify/discuss the basic structure of the United States Constitution and the rights/procedures as interpreted by the courts.

CJC 232 Civil Liability 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers liability issues for the criminal justice professional. Topics include civil rights violations, tort liability, employment issues, and other related topics. Upon completion, students should be able to explain civil trial procedures and discuss contemporary liability issues.

CJC 233 Correctional Law 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces statutory/case law pertinent to correctional concepts, facilities, and related practices. Topics include examination of major legal issues encompassing incarceration, probation, parole, restitution, pardon, restoration of rights, and other related topics. Upon completion, students should be able to identify/discuss legal issues which directly affect correctional systems and personnel.

CJC 241 Community-Based Corrections 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers programs for convicted offenders that are used both as alternatives to incarceration and in post-incarceration situations. Topics include offenders, diversion, house arrest, restitution, community service, probation and parole, including both public and private participation, and other related topics. Upon completion, students should be able to identify/discuss the various programs from the perspective of the criminal justice professional, the offender, and the community.

CJC 293 Selected Topics in Criminal Justice Technology - - - 3
 Prerequisites: Varies, based on topics
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Criminal Justice Technology. Emphasis is placed on subject matter appropriate to criminal justice. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CMT 210 Professional Construction Supervision 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the student to the fundamentals of effective supervision emphasizing professionalism through knowledge and applied skills. Topics include safety, planning and scheduling, contract, problem-solving, communications, conflict resolution, recruitment, employment laws and regulations, leadership, motivation, teamwork, discipline, setting objectives, and training. Upon completion, the student should be able to demonstrate the basic skills necessary to be successful as a supervisor in the construction industry.

CMT 212 Total Safety Performance	3	0	0	3
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Prerequisites: None
Corequisites: None
This course covers the importance of managing safety and productivity equally by encouraging people to take individual responsibility for safety and health in the workplace. Topics include safety management, controlling construction hazards, communicating and enforcing policies, OSHA compliance, personal responsibility and accountability, safety planning, training, and personal protective equipment. Upon completion, the student should be able to properly supervise safety at a construction jobsite and qualify for OSHA Thirty-Hour Train Certification.

CMT 214 Planning and Scheduling	3	0	0	3
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Prerequisites: CMT 210 and BPR 130
Corequisites: None
This course covers the need for the process of planning construction projects, as well as the mechanics and vocabulary of project scheduling. Topics include project preplanning, scheduling format, planning for production, short interval planning, schedule updating and revising, and computer-based planning and scheduling. Upon completion, the student should be able to understand the need for planning and scheduling, the language and logic of scheduling, and use of planning skills.

CMT 216 Costs and Productivity	3	0	0	3
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Prerequisites: CMT 210
Corequisites: None
This course covers the relationships between time, work completed, work-hours spent, schedule duration, equipment hours, and materials used. Topics include production rates, productivity unit rates, work method improvements, and overall total project cost control. Upon completion, the student should be able to demonstrate an understanding of how costs may be controlled and productivity improved on a construction project.

CMT 218 Human Relations Issues	3	0	0	3
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Prerequisites: CMT 210
Corequisites: None
This course provides instruction on human relations issues as they relate to construction project supervision. Topics include relationships, human behavior, project staffing issues, teamwork, effective communication networks, laws and regulations, and identifying and responding to conflict, crisis, and discipline. Upon completion, the student will demonstrate an understanding of the importance of human relations in the success of a construction project.

COE 111 Co-op Work Experience I	0	0	10	1
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Prerequisites: None
Corequisites: None
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

COE 112 Co-op Work Experience I	0	0	20	2
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Prerequisites: None
Corequisites: None
This course provides work experience with a college approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

COE 113 Co-op Work Experience I	0	0	30	3
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Prerequisites: None
Corequisites: None
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

COE 114 Co-op Work Experience I	0	0	40	4
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Prerequisites: None
Corequisites: None
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

COE 115 Work Experience Seminar I	1	0	0	1
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Prerequisites: None
Corequisites: COE 111 or COE 112 or COE 113 or COE 114
This is a seminar course designed to enrich the student's cooperative education work experience.

COE 121 Co-op Work Experience II	0	0	10	1
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Prerequisites: None
Corequisites: None
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

COE 122 Co-op Work Experience II	0	0	20	2
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Prerequisites: None
Corequisites: None
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

COE 123	Co-op Work Experience III	0	0	30	3
Prerequisites: None					
Corequisites: None					
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.					
COE 124	Co-op Work Experience II	0	0	40	4
Prerequisites: None					
Corequisites: None					
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.					
COE 125	Work Experience Seminar II	1	0	0	1
Prerequisites: None					
Corequisites: COE 121 or COE 122 or COE 123 or COE 124					
This is a seminar course designed to enrich the student's cooperative education work experience.					
COE 131	Co-op Work Experience III	0	0	10	1
Prerequisites: None					
Corequisites: None					
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.					
COE 211	Co-op Work Experience IV	0	0	10	1
Prerequisites: None					
Corequisites: None					
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.					
COE 223	Co-op Work Experience V	3	0	0	
Prerequisites: None					
Corequisites: None					
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.					

COM 110	Introduction to Communication	3	0	0	3
Prerequisites: None					
Corequisites: None					
This course provides an overview of the basic concepts of communication and the skills necessary to communicate in various contexts. Emphasis is placed on communication theories and techniques used in interpersonal group, public, intercultural, and mass communication situations. Upon completion, students should be able to explain and illustrate the forms and purposes of human communication in a variety of contexts.					
COM 111	Voice and Diction I	3	0	0	3
Prerequisites: None					
Corequisites: None					
This course provides guided practice in the proper production of speech. Emphasis is placed on improving speech, including breathing, articulation, pronunciation, and other vocal variables. Upon completion, students should be able to demonstrate effective natural speech in various contexts.					
COM 120	Interpersonal Communication	3	0	0	3
Prerequisites: None					
Corequisites: None					
This course introduces the practices and principles of interpersonal communication in both dyadic and group settings. Emphasis is placed on the communication process, perception, listening, self-disclosure, speech apprehension, ethics, nonverbal communication, conflict, power, and dysfunctional communication relationships. Upon completion, students should be able to demonstrate interpersonal communication skills, apply basic principles of group discussion, and manage conflict in interpersonal communication situations.					
COM 130	Nonverbal Communication	3	0	0	3
Prerequisites: COM 120					
Corequisites: None					
This course introduces the contemporary study of nonverbal communication in daily life. Topics include haptics, kinesics, proxemics, facial displays, and appearance. Upon completion, students should be able to analyze/interpret nonverbal communication and demonstrate greater awareness of their own nonverbal communication habits.					
COM 231	Public Speaking	3	0	0	3
Prerequisites: ENG 111					
Corequisites: None					
This course provides instruction and experience in preparation and delivery of speeches within a public setting and group discussion. Emphasis is placed on research, preparation, delivery, and evaluation of informative, persuasive, and special occasion public speaking. Upon completion, students should be able to prepare and deliver well-organized speeches and participate in group discussion with appropriate audiovisual support.					
COM 232	Election Rhetoric	3	0	0	3
Prerequisites: ENG 090, RED 090					
Corequisites: None					
This course provides an overview of communication styles and topics characteristic of election campaigns. Topics include election speeches, techniques used in election campaigns, and election speech topics. Upon completion, students should be able to identify and analyze techniques and styles typically used in election campaigns.					

COM 233 Persuasive Speaking 3 0 0 3
 Prerequisites: ENG 112 or ENG 113
 Corequisites: None
 This course introduces theory and history of persuasive speaking, covering critical thinking skills in analyzing problems, assessing solutions, and communicating the information to an audience. Emphasis is placed on analysis, evidence, reasoning, and library and field research used to enhance persuasive public speaking skills. Upon completion, students should be able to apply the principles of persuasive speaking in a public setting.

COM 251 Debate I 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the principles of debate. Emphasis is placed on argument, refutation, research, and logic. Upon completion, students should be able to use research skills and logic in the presentation of ideas within the context of formal debate.

CSC 120 Computing Fundamentals I 3 2 0 4
 Prerequisites: MAT 080 or MAT 090
 Corequisites: None
 This course provides the essential foundation for the discipline of computing and a program of study in computer science, including the role of the professional. Topics include algorithm design, data abstraction, searching and sorting algorithms, and procedural programming techniques. Upon completion, students should be able to solve problems, develop algorithms, specify data types, perform sorts and searches, and use an operating system.

CSC 125 Introduction to Parallel Programming 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces students to the techniques and tools used to write parallel programs. Topics include principles of parallel program design including architecture, algorithms, performance modeling, parallel programming standards, Message Passing Interface (MPI), OpenMP, API, and modern parallel languages. Upon completion, students should be able to discuss programming issues in a High Performance Computing system.

CSC 129 Technical Programming 2 3 0 3
 Prerequisites: MAT 121
 Corequisites: None
 This course introduces the analysis of technical problems by using different software tools. Emphasis is placed on solving technical problems using structured programming logic and tools such as a computer language, spreadsheet software, or an advanced programmable calculator. Upon completion, students should be able to derive solutions to complex technical problems using various software tools.

CSC 130 Computing Fundamentals II 3 2 0 4
 Prerequisites: CSC 120
 Corequisites: None
 This course provides in-depth coverage of the discipline of computing and the role of the professional. Topics include software design methodologies, analysis of algorithm and data structures, searching and sorting algorithms, and file organization methods. Upon completion, students should be able to use software design methodologies and choice of data structures and understand social/ethical responsibilities of the computing professional.

CSC 133 C Programming 2 3 0 3
 Prerequisites: MAT 070
 Corequisites: None
 This course introduces computer programming using the C programming language. Topics include input/output operations, sequence, selection, iteration, arithmetic operations, arrays tables, pointers, and other related topics. Upon completion, students should be able to design, code, test, and debug C language programs.

CSC 134 C++ Programming 2 3 0 3
 Prerequisites: MAT 070, RED 090
 Corequisites: CIS 115 or CSC 133
 This course introduces object-oriented computer programming using the C++ programming language. Topics include input/output operations, iteration, arithmetic operations, arrays, pointers, filters, and other related topics. Upon completion, students should be able to design, code, test, and debug C++ language programs. Additional topics will include classes, polymorphism, inheritance, operator overloading, and encapsulation.

CSC 136 FORTRAN Programming 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces computer programming using the FORTRAN programming language. Topics include input/output operations, sequence, selection, iteration, arithmetic operations, arrays, subprograms, and other related topics. Upon completion, students should be able to design, code, test, and debug FORTRAN language programs.

CSC 139 Visual BASIC Programming 2 3 0 3
 Prerequisites: MAT 070, RED 090
 Corequisites: None
 This course introduces event-driven computer programming using the Visual BASIC programming language. Topics include input/output operations, sequence, selection, iteration, arithmetic operations, arrays, forms, sequential files, and other related topics. Upon completion, students should be able to design, code, test, and debug Visual BASIC language programs. Students will learn the basic concepts of good interface design and program documentation.

CSC 142 Visual COBOL Prog 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces computer programming using the Visual COBOL programming language with structured programming principles. Topics include input/output operations, iteration, arithmetic operations, arrays, pointers, filters, and other related topics. Upon completion, students should be able to design, code, test and debug at a beginning level.

CSC 144 AS/400 CL Programming 2 3 0 3
 Prerequisites: CIS 115 and NOS 211
 Corequisites: None
 This course introduces computer programming using the CL programming language. Topics include CL command structure, command parameters, creating CL programs, manipulating variables, writing commands to control jobs and workflow, and other related topics. Upon completion, students should be able to design, code, test, and debug CL programs.

CSC 148 See CSC 151.

CSC 150 Visual RPG Prog	2	3	0	3
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Prerequisites: None
Corequisites: None
This course introduces computer programming using the Visual RPG programming language with structured programming principles. Topics include input/output operations, iteration, arithmetic operations, arrays, pointers, filters, and other related topics. Upon completion, students should be able to design, code, test and debug at a beginning level.

CSC 151 JAVA Programming	2	3	0	3
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Prerequisites: MAT 070, RED 090
Corequisites: CIS 115
This course introduces computer programming using the JAVA programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger.

CSC 152 SAS	2	3	0	3
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Prerequisites: MAT 070, RED 090
Corequisites: CIS 115
This course introduces the fundamentals of SAS programming. Emphasis is placed on learning basic SAS commands and statements for solving a variety of data processing applications. Upon completion, students should be able to use SAS data and procedure steps to create SAS data sets, do statistical analysis, and general customized reports.

CSC 153 C# Programming	2	3	0	3
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Prerequisites: MAT 070, RED 090
Corequisites: None
This course introduces computer programming using the C# programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test, debug, and implement objects using the appropriate environment at the beginning level.

CSC 160	See WEB 115.			
CSC 175	See WEB 182.			
CSC 185	See WEB 183.			

CSC 192 Selected Topics: MFC Project	1	2	0	2
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Prerequisites: CSC 234
Corequisites: None
This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on subject matter appropriate to computer programming. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CSC 193 Selected Topics in: Oracle Performance Tuning	2	2	0	3
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Prerequisites: CIS 255
Corequisites: None
This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on subject matter appropriate to computer programming. Upon completion, students should be able to demonstrate an understanding of the specific area of study. This course will prepare students for Oracle DBA certification.

CSC 198 Seminar in C Programming	2	2	0	3
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Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

CSC 220 Machine Implementation of Algorithms	3	2	0	4
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Prerequisites: CSC 120
Corequisites: MAT 271
This course covers the organization and operation of real computer systems at the assembly language level. Topics include mapping of statements and constructs onto machine instruction sequences, internal data types and structures representation, numerical computation, and iterative approximation methods. Upon completion, students should be able to analyze computer system organization, implement procedural language elements, and describe the programming language translation process.

CSC 225 Advanced Parallel Programming	2	3	0	3
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Prerequisites: CSC 125
Corequisites: None
The course introduces students to advanced topics in parallel programming and reviews available tools and libraries for parallel programming. Topics include partitioning and scheduling techniques, performance metrics and scalability, cluster environment programming, vector processing, compiler directives, code optimization and algorithms for parallel computers. Upon completion, students should be able to design an application in a HPC environment.

CSC 229 MPI Programming	2	3	0	3
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Prerequisites: CSC 125
Corequisites: None
This course introduces students to the Message Passing Interface (MPI) library. Topics include writing programs using the MPI routines, adding parallelism to application code, collective operations, timing, manipulation communicators, PTP operations, and tuning parallel programs. Upon completion, students should be able to design and code a program using the MPI library.

CSC 233 Advanced C	2	3	0	3
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Prerequisites: CSC 133
Corequisites: None
This course is a continuation of CSC 133 using C with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug, and document programming solutions.

CSC 234 Advanced C++	2	3	0	3
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Prerequisites: CSC 134
Corequisites: None
This course is a continuation of CSC 134 using C++ with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug, and document programming solutions. Additional topics will include binary and textfile manipulation, virtual functions and classes, templates, class libraries, and windows programming.

CSC 236 Advanced Fortran Programming 2 3 0 3
 Prerequisites: CSC 136
 Corequisites: None
 This course is a continuation of CSC 136 using the Fortran programming language with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug and document programming solutions.

CSC 238 Adv RPG Programming 2 3 0 3
 Prerequisites: CSC 138
 Corequisites: None
 This course is a continuation of CSC 138 using the RPG programming language with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug and document programming solutions.

CSC 239 Advanced Visual BASIC 2 3 0 3
 Prerequisites: CSC 139
 Corequisites: DBA 110
 This course is a continuation of CSC 139 using Visual BASIC with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug, and document programming solutions. Emphasis will be placed on linking to and manipulating a database through tables, queries, and customization using API calls.

CSC 241 Adv Visual C++ Programming 2 3 0 3
 Prerequisites: CSC 141
 Corequisites: None
 This course is a continuation of CSC 141 using the Visual C++ programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test, debug, and implement objects using the appropriate environment.

CSC 242 Advanced Visual COBOL Programming 2 3 0 3
 Prerequisites: CSC 142
 Corequisites: None
 This course is a continuation of CSC 142 using the Visual COBOL programming language with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug and document programming solutions

CSC 244 CICS 4 2 0 5
 Prerequisites: CSC 235
 Corequisites: None
 This course provides an in-depth study of interactive transaction processing using command level CICS. Topics include pseudoconversational programming, basic mapping support, control tables, storage areas, file maintenance, screen design, and EDF debugging. Upon completion, students should be able to design, code, test, debug, and document command level COBOL programs for menuing, record processing, browsing, and temporary storage.

CSC 245 Advanced C/C++ Programming 2 3 0 3
 Prerequisites: CSC 133, CSC 134, CSC 140, CSC 141, or CSC 145
 Corequisites: None
 This course covers additional operations using C dialects primarily relating to operating system interfacing. Topics include advanced file handling, interprocess communications, messages, semaphores, inter-language calls, signals, device drivers, sockets, and client/server techniques. Upon completion, students should be able to write and modify programs using advanced functions.

CSC 246 Realtime Programming 2 3 0 3
 Prerequisites: A high-level or assembly programming language
 Corequisites: None
 This course covers the techniques for programming in a realtime environment. Topics include signals, critical sections, polling, interface devices, timing, open and closed loop control, speed/size optimization, and special considerations for embedded controllers. Upon completion, students should be able to write and modify interface routines used with time-critical applications.

CSC 247 Advanced Assembly Language 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course covers additional techniques used in efficient assembly language programs. Topics include memory models, re-entrant code, recursion, ROM-able code, disassembly, patching, device drivers, and interfacing to high-level languages. Upon completion, students should be able to create, patch, and optimize sub-programs for use in solving problems

.CSC 248 See WEB 215.

CSC 249 Data Structures and Algorithms 2 3 0 3
 Prerequisites: CSC 132, CSC 133, CSC 134, CSC 135, CSC 136, CIS 137, CSC 151
 Corequisites: None
 This course introduces the data structures and algorithms frequently used in programming applications. Topics include lists, stacks, queues, dequeues, heaps, sorting, searching, mathematical operations, recursion, encryption, random numbers, algorithm testing, and standards. Upon completion, students should be able to design data structures and implement algorithms to solve various problems.

CSC 250 Advanced Visual RPG Programming 2 3 0 3
 Prerequisites: CSC 150
 Corequisites: None
 This course is a continuation of CSC 150 using the Visual RPG programming language with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug and document programming solutions.

CSC 251 Advanced JAVA Programming 2 3 0 3
 Prerequisites: CSC 151
 Corequisites: None
 This course is a continuation of CSC 151 using the JAVA programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test, debug, and implement objects using the appropriate environment.

CSC 253 Advanced C# Programming 2 3 0 3
 Prerequisites: CSC 153
 Corequisites: None
 This course is a continuation of CSC 153 using the C# programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test, debug, and implement objects using the appropriate environment.

CSC 255 OpenMP Programming 2 3 0 3
 Prerequisites: CSC 125
 Corequisites: None
 This course introduces students to the basics of using the OpenMP programming standard. Topics include directive-based shared memory parallel processing, incremental parallelization, and developing portable code for shared memory architectures using the OpenMP model. Upon completion, students should be able to design and code a program using the OpenMP standard.

CSC 258 JAVA Enterprise Programs 2 3 0 3
 Prerequisites: CSC 148
 Corequisites: CSC 248, CSC 251
 This course provides a continuation to CSC 148 using the Java Enterprise Edition (JEE) programming architecture. Topics include distributed network applications, database connectivity, Enterprise Java Beans, servlets, collection frameworks, JNDI, RMI, JSP, multithreading XML and multimedia development. Upon completion, students should be able to program a client/server enterprise application using the JEE framework.

CSC 260 Programming in Another Language 2 2 0 3
 Prerequisites: CSC 120
 Corequisites: None
 This course provides in-depth coverage, with applications, of a programming language which was not covered in CSC 120, 130, 220, or 230. Emphasis is placed on using the covered language to develop well-structured programs to solve appropriate problems. Upon completion, students should be able to understand the uses, syntax, and limitations of the language while comparing similarities and differences with other languages.

CSC 275 HPC Algorithms 2 2 0 3
 Prerequisites: CSC 125
 Corequisites: None
 This course introduces students to the various algorithms available for HPC environments. Topics include distributed algorithms, programming models for massively parallel machines, various parallel standard template libraries, distributed-memory message-passing algorithms, minimal communication and latency-tolerant algorithms. Upon completion, students should be able to discuss and code a program using HPC algorithms.

CSC 278 JAVA Message Service 2 3 0 3
 Prerequisites: CSC 148
 Corequisites: CSC 248 and CSC 251
 This course introduces the student to the Java Message Service (JMS), an application program interface that supports messaging between computers in a network. Topics include point-to-point models, transactions, reliability issues, durable subscriptions and introduces messaging within Enterprise JavaBeans technology. Upon completion, students should be able to complete a project using the JMS technology

CSC 284 Emerging Computer Programming Technologies 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course provides students with the latest technologies and strategies in the field of Computer Programming. Emphasis is placed on the evaluation of developing Computer Programming Technologies and presenting those findings to the class. Upon completion, students should be able to critically analyze emerging Computer Programming Technologies and establish informed opinions.

CSC 285 See CSC 289.

CSC 289 Programming Capstone Project 1 4 0 3
 Prerequisites: CTS 285
 Corequisites: None
 This course provides an opportunity to complete a significant programming project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, testing, presentation, and implementation. Upon completion, students should be able to complete a project from the definition phase through implementation.

CSC 291 Selected Topics in Computer Programming: C++ Project 0 2 0 1
 Prerequisites: None
 Corequisites: CSC 234
 This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on subject matter appropriate to computer programming. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CSC 292 Selected Topics in Computer Programming: Visual Basic Project 1 2 0 2
 Prerequisites: CSC 239
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on subject matter appropriate to computer programming. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CSC 293 Selected Topics: ORACLE Projects - - - 3
 Prerequisites: CIS 257
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on subject matter appropriate to computer programming. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CSC 296 Seminar in JAVA Project	2	0	0	1
Prerequisites: CSC 148, CSC 251 Corequisites: None This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.				
CSC 297 ADO.NET	1	3	0	2
Prerequisites: None Corequisites: None This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions. <i>Course will review the ADO.NET component of the Visual Studio .NET Framework to build applications and web services.</i>				
CSC 298 Seminar in Computer Programming	-	-	-	3
Prerequisites: CIS 256 Corequisites: None This course provides an opportunity to explore areas of current interest in Computer Programming. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.				
CTS 080 Computing Fundamentals	2	3	0	3
Prerequisites: None Corequisites: None This course covers fundamental functions and operations of the computer. Topics include identification of components and basic computer operations including introduction to operating systems, the Internet, web browsers, and communication using World Wide Web. Upon completion, students should be able to operate computers, access files, print documents and perform basic applications operations.				
CTS 112 Windows™	1	2	0	2
Prerequisites: None Corequisites: None This course includes the fundamentals of the Windows™ software. Topics include graphical user interface, icons, directories, file management, accessories, and other applications. Upon completion, students should be able to use Windows™ software in an office environment.				
CTS 115 Information Systems Business Concepts	3	0	0	3
Prerequisites: CIS 110 or CIS 111 or SGD 111 Corequisites: None The course introduces the role of IT in managing business processes and the need for business process and IT alignment. Emphasis is placed on industry need for understanding business challenges and developing/managing information systems to contribute to the decision making process based on these challenges. Upon completion, students should be able to demonstrate knowledge of the 'hybrid business manager' and the potential offered by new technology and systems.				

CTS 118 IS Professional Communication	2	0	0	2
Prerequisites: None Corequisites: None This course prepares the information systems professional to communicate with corporate personnel from management to end-users. Topics include information systems cost justification tools, awareness of personal hierarchy of needs, addressing these needs, and discussing technical issues with non-technical personnel. Upon completion, students should be able to communicate information systems issues to technical and non-technical personnel.				
CTS 120 Hardware/Software Support	2	3	0	3
Prerequisites: CIS 110 or CIS 111 Corequisites: None This course covers the basic hardware of a personal computer, including installation, operations and interactions with software. Topics include component identification, memory-system, peripheral installation and configuration, preventive maintenance, hardware diagnostics/repair, installation and optimization of system software, commercial programs, system configuration, and device-drivers. Upon completion, students should be able to select appropriate computer equipment and software, upgrade/maintain existing equipment and software, and troubleshoot/repair non-functioning personal computers.				
CTS 125 Presentation Graphics	2	2	0	3
Prerequisites: CIS 110 or CIS 111 Corequisites: None This course provides hands-on experience with a graphics presentation package. Topics include terminology, effective chart usage, design and layout, integrating hardware components, and enhancing presentations with text, graphics, audio and video. Upon completion, students should be able to design and demonstrate an effective presentation.				
CTS 130 Spreadsheet	2	2	0	3
Prerequisites: CIS 110 or CIS 111 or OST 137 Corequisites: None This course introduces basic spreadsheet design and development. Topics include writing formulas, using functions, enhancing spreadsheets, creating charts, and printing. Upon completion, students should be able to design and print basic spreadsheets and charts.				
CTS 135 Integrated Software Introduction	2	4	0	4
Prerequisites: CIS 110 or CIS 111 Corequisites: None This course instructs students in the Windows or Linux based program suites for word processing, spreadsheet, database, personal information manager, and presentation software. This course prepares students for introductory level skills in database, spreadsheet, personal information manager, word processing, and presentation applications to utilize data sharing. Upon completion, students should be able to design and integrate data at an introductory level to produce documents using multiple technologies.				
CTS 155 Technical Support Functions	2	2	0	3
Prerequisites: RED 090 Corequisites: CIS 110 or CIS 111 or NET 110 This course introduces a variety of diagnostic and instructional tools that are used to evaluate the performance of technical support technologies. Emphasis is placed on technical support management techniques and support technologies. Upon completion, students should be able to determine the best technologies to support and solve actual technical support problems.				

CTS 210 Computer Ethics 3 0 0 3
 Prerequisites: CIS 110 or CIS 111 or NET 110 or TNE 111
 Corequisites: None
 This course introduces the student to current legal and ethical issues in the computer/engineering field. Topics include moral reasoning, ethical standards, intellectual property, social issues, encryption, software piracy, constitutional issues, and public policy in related matters. Upon completion, students should be able to demonstrate an understanding of the moral and social responsibilities and public policy issues facing an industry.

CTS 220 Adv Hard/Software Support 2 3 0 3
 Prerequisites: CTS 120
 Corequisites: None
 This course provides advanced knowledge and competencies in hardware and operating system technologies for computer technicians to support personal computers. Emphasis is placed on: configuring and upgrading; diagnosis and troubleshooting; as well as preventive maintenance of hardware and system software. Upon completion, students should be able to install, configure, diagnose, perform preventive maintenance, and maintain basic networking on personal computers.

CTS 230 Advanced Spreadsheet 2 2 0 3
 Prerequisites: CTS 130
 Corequisites: None
 This course covers advanced spreadsheet design and development. Topics include advanced functions and statistics, charting, macros, databases, and linking. Upon completion, students should be able to demonstrate competence in designing complex spreadsheets.

CTS 235 Integrated Software Advanced 2 4 0 4
 Prerequisites: CTS 135
 Corequisites: None
 This course provides strategies to perform data transfer among software programs. Emphasis is placed on data interchange among word processors, spreadsheets, presentation graphics, databases and communications products. Upon completion, students should be able to integrate data to produce documents using multiple technologies.

CTS 240 Project Management 2 2 0 3
 Prerequisites: CIS 110 or CIS 111
 Corequisites: None
 This course introduces computerized project management software. Topics include identifying critical paths, cost management, and problem solving. Upon completion, students should be able to plan a complete project and project time and costs accurately.

CTS 250 User Support & Software Evaluation 2 2 0 3
 Prerequisites: CTS 120 and NOS 130
 Corequisites: None
 This course provides an opportunity to evaluate software and hardware and make recommendations to meet end-user needs. Emphasis is placed on software and hardware evaluation, installation, training, and support. Upon completion, students should be able to present proposals and make hardware and software recommendations based on their evaluations.

CTS 255 Advanced Technical Support Functions 2 2 0 3
 Prerequisites: CTS 155
 Corequisites: None
 This course introduces a variety of diagnostic and instructional tools that are used to evaluate the performance of technical support technologies. Topics include technical support management techniques, evaluation, and methods of deployment for technical support technologies. Upon completion, students should be able to determine the best technologies to support and solve more complex technical support problems.

CTS 285 Systems Analysis & Design 3 0 0 3
 Prerequisites: CIS 115
 Corequisites: None
 This course introduces established and evolving methodologies for the analysis, design, and development of an information system. Emphasis is placed on system characteristics, managing projects, prototyping, CASE/OOM tools, and systems development life cycle phases. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques.

CTS 287 Emerging Technologies 3 0 0 3
 Prerequisites: CIS 110 or CIS 111; and ENG 111
 Corequisites: None
 This course introduces emerging information technologies. Emphasis is placed on evolving technologies and trends in business and industry. Upon completion, students should be able to articulate an understanding of the current trends and issues in emerging technologies for information systems.

CTS 289 System Support Project 1 4 0 3
 Prerequisites: CTS 285
 Corequisites: CTS 255
 This course provides an opportunity to complete a significant support project with minimal instructor assistance. Emphasis is placed on written and oral communication skills, project definition, documentation, installation, testing, presentation, and user training. Upon completion, students should be able to complete a project from the definition phase through implementation.

CTS 292 Selected Topics in Computer Information Technology: Support Center Leadership and Management - - - 2
 Prerequisites: CTS 255
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in support center leadership and management. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

CTS 293 Selected Topics in Computer Information Technology: Post Advanced Applications - - -3
 Prerequisites: CIS 219
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in post advanced applications. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

CTS 297 Seminar in MCDST 1 2 0 2
 Prerequisites: CIS 116
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Microsoft Certified Desktop Support Technician (MCDST). Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

CTS 298 Seminar in Computer Information Technology: Computer Forensics - - - 3
 Prerequisites: MAT 171 or MAT 175; and CIS 235
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in computer forensics. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

CUL 110 Sanitation and Safety 2 0 0 2
 Prerequisites: ENG 080, RED 080
 Corequisites: None
 This course introduces the basic principles of sanitation and safety and their relationship to the hospitality industry. Topics include personal hygiene, sanitation and safety regulations, use and care of equipment, the principles of food-borne illness, and other related topics. Upon completion, students should be able to demonstrate an understanding of sanitation and safety procedures in the hospitality industry.

CUL 112 Nutrition for Foodservice 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the principles of nutrition and its relationship to the foodservice industry. Topics include fundamentals of personal nutrition, nutrition over the life cycle, weight management and exercise, health aspects of nutrition, developing healthy recipes and menus, healthy cooking techniques and marketing nutrition in a foodservice operation. Upon completion, students should be able to apply basic nutritional concepts to food preparation and selection.

CUL 120 Purchasing 2 0 0 2
 Prerequisites: CUL 110, CUL 140
 Corequisites: CUL 120A
 This course covers purchasing for hotels and restaurants. Emphasis is placed on procurement, yield tests, inventory control, specification, planning, forecasting, market trends, terminology, cost controls, pricing, and foodservice ethics. Upon completion, students should be able to apply effective purchasing techniques based on the end-use of the product.

CUL 120A Purchasing Lab 0 2 0 1
 Prerequisites: CUL 110, CUL 140
 Corequisites: CUL 120
 This course is a laboratory to accompany CUL 120. Emphasis is placed on practical experiences that enhance the materials presented in CUL 120. Upon completion, students should be able to demonstrate practical applications of purchasing within in the hospitality industry.

CUL 125 Hospitality Information Systems 1 2 0 2
 Prerequisites: MAT 115, CIS 111, CUL 140
 Corequisites: None
 This course introduces hospitality and food service information systems. Topics include planning, cost controls, forecasting, inventory control, recipe control, production control, and nutritional analysis. Upon completion, students should be able to demonstrate competence in utilizing contemporary information application systems in a hospitality setting.

CUL 135 Food and Beverage Service 2 0 0 2
 Prerequisites: ENG 080, MAT 080, RED 080
 Corequisites: CUL 135A
 This course covers the practical skills and knowledge for effective food and beverage service in a variety of settings. Topics include reservations, greeting and service of guests, styles of service, handling complaints, and sales and merchandising. Upon completion, students should be able to demonstrate competence in human relations and technical skills required in the service of foods and beverages. Concepts and skills studied in this course will be applied in CUL 135A, Food and Beverage Service Lab.

CUL 135A Food and Beverage Service Lab 0 2 0 1
 Prerequisites: ENG 080, MAT 080, RED 080
 Corequisites: CUL 135
 This course is a laboratory to accompany CUL 135. Emphasis is placed on practical experiences that enhance the materials presented in CUL 135. Upon completion, students should be able to demonstrate practical applications of skills required in the service of foods and beverages.

CUL 140 Basic Culinary Skills 2 6 0 5
 Prerequisites: ENG 090, MAT 070, RED 090
 Corequisites: CUL 110
 This course introduces the fundamental concepts, skills, and techniques involved in basic cookery. Emphasis is placed on recipe conversion, measurements, terminology, knife skills, safe food handling, cooking methods, flavorings, seasonings, stocks/sauces/soups, and other related topics. Upon completion, students should be able to exhibit the basic cooking skills used in the food service industry.

CUL 160 Baking I 1 4 0 3
 Prerequisites: CUL 110, CUL 140
 Corequisites: None
 This course covers basic ingredients, weights and measures, baking terminology, and formula calculations. Topics include yeast-raised products, quick breads, pastry dough, various cakes and cookies, and appropriate filling and finishing techniques. Upon completion, students should be able to prepare and evaluate baked products.

CUL 170 Garde-Manger I 1 4 0 3
 Prerequisites: CUL 110, CUL 140
 Corequisites: None
 This course introduces basic cold food preparation techniques and pantry production. Topics include salads, sandwiches, appetizers, dressings, basic garnishes, cheeses, cold sauces, and related food items. Upon completion, students should be able to lay out a basic cold food display and exhibit an understanding of the cold kitchen and its related terminology.

CUL 180 International and American Regional Cuisine 1 8 0 5
 Prerequisites: CUL 140, CUL 160, CUL 170, CUL 240
 Corequisites: None
 This course provides practical experience in the planning, preparation, and service of representative foods from different countries and regions of America. Emphasis is placed on eating habits, indigenous foods and customs, nutritional concerns, and traditional equipment. Upon completion, students should be able to research and execute international and domestic menus.

CUL 214 Wine Appreciation 1 2 0 2
 Prerequisites: ENG 090, RED 090
 Corequisites: None
 This course provides comprehensive and detailed information about wine from all the major wine producing countries. Emphasis is placed on the history of wine, production characteristics, laws, and purchasing and storing requirements. Upon completion, students should be able to determine what wines compliment various cuisines and particular tastes.

CUL 240 Advanced Culinary Skills 1 8 0 5
 Prerequisites: CUL 110, CUL 140
 Corequisites: None
 This course is a continuation of CUL 140. Emphasis is placed on meat fabrication and butchery; vegetable, starch, and protein cookery; compound sauces; plate presentation; breakfast cookery; and quantity food preparation. Upon completion, students should be able to plan, execute, and successfully serve entrees with complementary side items.

CUL 250 Classical Cuisine 1 8 0 5
 Prerequisites: CUL 140, CUL 240, COE 112
 Corequisites: None
 This course reinforces the classical culinary kitchen as established by Escoffier. Topics include the working Grand Brigade of the kitchen, table d'hôte menus, signature dishes, and classical banquets. Upon completion, students should be able to demonstrate competence in food preparation in a classical/upscale restaurant or banquet setting.

CUL 260 Baking II 1 4 0 3
 Prerequisites: CUL 160
 Corequisites: None
 This course is a continuation of CUL 160. Topics include specialty breads, understanding, development and maintaining of natural sourdough, classical desserts, laminated pastry dough, cake and torte decorating and dessert plating and presentation. Upon completion, students should be able to demonstrate pastry presentation and plating, specialty sourdough production, cake decorating and dessert buffet production skills.

CUL 270 Garde-Manager II 1 4 0 3
 Prerequisites: CUL 170
 Corequisites: None
 This course is a continuation of CUL 170. Topics include pâtés, terrines, galantines, ice and tallow carving, chaud-froid/aspic work, charcuterie, smoking, canapés, hors d'oeuvres, and related food items. Upon completion, students should be able to design, set up, and evaluate a catering function to include a classical cold buffet with appropriate show pieces.

CUL 280 Pastry and Confections 1 4 0 3
 Prerequisites: CUL 160, CUL 260
 Corequisites: None
 This course is a continuation of CUL 260. Topics include confections and candy, chocolate tempering and molding, transfer sheets, pulled and blown sugar (basic pulling and ribboning), pastillage, marzipan and custom silicon molding. Upon completion, students will be able to design and produce centerpieces and showpieces made from tempered chocolate, pulled sugar, pastillage and marzipan, as produced through custom molding, pre-set molding, stencil cut-outs, pattern tracing and/or free-hand shaping

D

DBA 110 Database Concepts 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces database design and creation using a DBMS product. Emphasis is placed on data dictionaries, normalization, data integrity, data modeling, and creation of simple tables, queries, reports, and forms. Upon completion, students should be able to design and implement normalized database structures by creating simple database tables, queries, reports, and forms.

DBA 112 Database Utilization 2 2 0 3
 Prerequisites: CIS 110 or CIS 111 or OST 137
 Corequisites: None
 This course introduces basic database functions and uses. Emphasis is placed on database manipulation with queries, reports, forms, and some table creation. Upon completion, students should be able to enter and manipulate data from the end user mode.

DBA 115 Database Applications 2 2 0 3
 Prerequisites: DBA 110
 Corequisites: None
 This course applies concepts learned in DBA 110 to a specific DBMS. Topics include manipulating multiple tables, advanced queries, screens and reports, linking, and command files. Upon completion, students should be able to create multiple table systems that demonstrate updates, screens, and reports representative of industry requirements.

DBA 120 Database Programming I 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course is designed to develop SQL programming proficiency. Emphasis is placed on data definition, data manipulation, and data control statements as well as on report generation. Upon completion, students should be able to write programs which create, update, and produce reports

DBA 192 Selected Topics in Database Management: Oracle Internet Application 1 2 0 2
 Prerequisites: DBA 120, DBA 240
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Oracle internet applications. Emphasis is placed on subject matter appropriate to computer programming. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DBA 193 Selected Topics in Database Management: Oracle Optimization 2 2 0 3
 Prerequisites: DBA 230, DBA 260
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Oracle optimization. Emphasis is placed on subject matter appropriate to computer programming. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DBA 210 Database Administration 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course covers database administration issues and distributed database concepts. Topics include: database administrator (DBA) goals and functions, backup and recovery, standards and procedures, training, and database security and performance evaluations. Upon completion, students should be able to produce functional DBA documentation and administer a database.

DBA 220 Oracle DB Programming II 2 2 0 3
 Prerequisites: DBA 120 and CIS 157
 Corequisites: None
 This course is designed to enhance programming skills developed in DBA 120. Topics include application development with GUI front-ends and embedded programming. Upon completion, students should be able to develop an Oracle DBMS application which includes a GUI front-end and report generation.

DBA 221 SQL Server DB Programming II 2 2 0 3
 Prerequisites: DBA 120
 Corequisites: None
 This course is designed to enhance programming skills developed in DBA 120. Topics include application development with GUI front-ends and embedded programming. Upon completion, students should be able to develop a SQL Server DBMS application which includes a GUI front-end and report generation.

DBA 222 DB2 DB Programming II 2 2 0 3
 Prerequisites: DBA 120
 Corequisites: None
 This course is designed to enhance programming skills developed in DBA 120. Topics include application development with GUI front-ends and embedded programming. Upon completion, students should be able to develop a DB2 DBMS application which includes a GUI front-end and report generation.

DBA 223 MySQL DB Programming II 2 2 0 3
 Prerequisites: DBA 120
 Corequisites: None
 This course is designed to enhance programming skills developed in DBA 120. Topics include application development with GUI front-ends and embedded programming. Upon completion, students should be able to develop a MySQL DBMS application which includes a GUI front-end and report generation.

DBA 224 SAS DB Programming II 2 2 0 3
 Prerequisites: DBA 120
 Corequisites: None
 This course is designed to enhance programming skills developed in DBA 120. Topics include application development with GUI front-ends and embedded programming. Upon completion, students should be able to develop a SAS DBMS application which includes a GUI front-end and report generation.

DBA 230 Database in Corporate Environments 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers database systems as they relate to the corporate environment. Topics include knowledge-based, decision-support, and expert systems; database choices; data warehousing; and corporate structure. Upon completion, students should be able to analyze and recommend database systems needed by a corporation.

DBA 240 Database Analysis/Design 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course is an exploration of the established and evolving methodologies for the analysis, design, and development of a database system. Emphasis is placed on business data characteristics and usage, managing database projects, prototyping and modeling, and CASE tools. Upon completion, students should be able to analyze, develop, and validate a database implementation plan.

DBA 260 Oracle DBMS Administration 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course examines advanced Oracle database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions.

DBA 261 SQL Server DBMS Administration 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course examines advanced SQL Server database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions.

DBA 262 DB2 DBMS Administration 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course examines advanced DB2 database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions.

DBA 263 MySQL DBMS Administration 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course examines advanced MySQL database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions.

DBA 264 SAS DBMS Administration 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course examines advanced SAS database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions.

DBA 270 Oracle Performance Tuning 2 2 0 3
 Prerequisites: NOS 130
 Corequisites: None
 This course covers Oracle performance tuning concepts and techniques. Topics include database tuning and Oracle performance tools. Upon completion, students should be able to configure and diagnose an Oracle database for optimal performance.

DBA 271 SQL Server Performance Tuning 2 2 3
 Prerequisites: NOS 130
 Corequisites: None
 This course covers SQL Server performance tuning concepts and techniques. Topics include database tuning and SQL Server performance tools. Upon completion, students should be able to configure and diagnose an SQL Server database for optimal performance.

DBA 272 DB2 Performance Tuning 2 2 0 3
 Prerequisites: NOS 130
 Corequisites: None
 This course covers DB2 performance tuning concepts and techniques. Topics include database tuning and DB2 performance tools. Upon completion, students should be able to configure and diagnose a DB2 database for optimal performance.

DBA 273 MySQL Performance Tuning 2 2 3
 Prerequisites: NOS 130
 Corequisites: None
 This course covers MySQL performance tuning concepts and techniques. Topics include database tuning and MySQL performance tools. Upon completion, students should be able to configure and diagnose a MySQL database for optimal performance.

DBA 274 SAS Performance Tuning 2 2 0 3
 Prerequisites: NOS 130
 Corequisites: None
 This course covers SAS performance tuning concepts and techniques. Topics include database tuning and SAS performance tools. Upon completion, students should be able to configure and diagnose a SAS database for optimal performance.

DBA 285 Data Warehousing & Mining 3 3
 Prerequisites: NOS 130
 Corequisites: None
 This course introduces data warehousing and data mining techniques. Emphasis is placed on data warehouse design, data transference, data cleansing, retrieval algorithms, and mining techniques. Upon completion, students should be able to create, populate, and mine a data warehouse.

DBA 289 Database Project 1 4 3
 Prerequisites: DBA 240 and DBA 120
 Corequisites: None
 This course provides an opportunity to complete a significant database systems project with minimal instructor support. Emphasis is placed on written and verbal communication skills, documentation, presentation, and user training. Upon completion, students should be able to present an operational database system which they have created.

DBA 291 Selected Topics in Database Management: Oracle Project - - - 1
 Prerequisites: DBA 192, DBA 220
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in database management through an Oracle project. Emphasis is placed on subject matter appropriate to computer programming. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DDF 211 Design Drafting I 1 6 0 4
 Prerequisites: None
 Corequisites: None
 This course emphasizes design processes for finished products. Topics include data collection from manuals and handbooks, efficient use of materials, design sketching, specifications, and vendor selection. Upon completion, students should be able to research and plan the design process for a finished product.

DDF 221 Design Drafting Project 0 4 0 2
 Prerequisites: None
 Corequisites: None
 This course incorporates ideas from concept to final design. Topics include reverse engineering, design for manufacturability, and mock-up construction. Upon completion, students should be able to generate working drawings and models based on physical design parameters.

DDT 110 Developmental Disabilities 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course identifies the characteristics and causes of various disabilities. Topics include history of service provision, human rights, legislation and litigation, advocacy, and accessing support services. Upon completion, students should be able to demonstrate an understanding of current and historical developmental disability definitions and support systems used throughout the life span.

DDT 120 Teaching the Developmentally Disabled 3 0 0 3
 Prerequisites: DDT 110
 Corequisites: None
 This course covers teaching modalities which enhance learning among people with developmental disabilities. Topics include assessment, support strategies, writing behavioral strategies, teaching methods, and documentation. Upon completion, students should be able to demonstrate competence in individual program plan development and implementation.

DDT 210 DDT Health Issues 3 0 0 3
 Prerequisites: DDT 110
 Corequisites: None
 This course introduces the health and medical aspects of assisting people with developmental disabilities. Topics include universal precautions, medication, wellness, nutrition, human sexuality, and accessing medical services. Upon completion, students should be able to identify and implement strategies to promote wellness and manage chronic health conditions. Upon completion, students should be able to identify and implement strategies for the maintenance, prevention, and treatment of predominant health conditions affecting the developmentally disabled.

DDT 220 Program Planning Process 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the individual program planning process used in services for people with developmental disabilities. Topics include basic components and benefits of the process, the effect of values on outcomes, and group problem-solving methods. Upon completion, students should be able to demonstrate an understanding of effective group process in program planning and the individual roles of team members.

DEN 100 Basic Orofacial Anatomy 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course provides a basic introduction to the structures of the head, neck, and oral cavity. Topics include tooth morphology, head and neck anatomy, histology, and embryology. Upon completion, students should be able to demonstrate knowledge of normal structures and development and how they relate to the practice of dental assisting.

DEN 101 Preclinical Procedures 4 6 0 7
 Prerequisites: None
 Corequisites: BIO 106, DEN 102, DEN 110, DEN 111
 This course provides instruction in procedures for the clinical dental assistant as specified by the North Carolina Dental Practice Act. Emphasis is placed on orientation to the profession, infection control techniques, instruments, related expanded functions, and diagnostic, operative, and specialty procedures. Upon completion, students should be able to demonstrate proficiency in clinical dental assisting procedures.

DEN 102 Dental Materials 3 4 0 5
 Prerequisites: None
 Corequisites: BIO 106, DEN 101, DEN 110, DEN 111
 This course provides instruction in identification, properties, evaluation of quality, principles, and procedures related to manipulation and storage of operative and specialty dental materials. Emphasis is placed on the understanding and safe application of materials used in the dental office and laboratory. Upon completion, students should be able to demonstrate proficiency in the laboratory and clinical application of routinely used dental materials.

DEN 103 Dental Sciences 2 0 0 2
 Prerequisites: None
 Corequisites: DEN 104, DEN 105, DEN 106, DEN 112
 This course is a study of oral pathology, pharmacology, and dental office emergencies. Topics include oral pathological conditions, dental therapeutics, and management of emergency situations. Upon completion, students should be able to recognize abnormal oral conditions, identify classifications, describe actions and effects of commonly prescribed drugs, and respond to medical emergencies.

DEN 104 Dental Health Education 2 2 0 3
 Prerequisites: DEN 101, DEN 111
 Corequisites: DEN 103, DEN 104, DEN 105, DEN 106, DEN 112
 This course covers the study of preventive dentistry to prepare dental assisting students for the role of dental health educator. Topics include etiology of dental diseases, preventive procedures, and patient education theory and practice. Upon completion, students should be able to demonstrate proficiency in patient counseling and oral health instruction in private practice or public health settings.

DEN 105 Practice Management 2 0 0 2
 Prerequisites: None
 Corequisites: DEN 103, DEN 104, DEN 106, DEN 112
 This course provides a study of principles and procedures related to management of the dental practice. Emphasis is placed on maintaining clinical and financial records, patient scheduling, and supply and inventory control. Upon completion, students should be able to demonstrate fundamental skills in dental practice management.

DEN 106 Clinical Practice I 1 0 12 5
 Prerequisites: DEN 101, DEN 111
 Corequisites: DEN 102, DEN 104, DEN 112
 This course is designed to provide experience assisting in a clinical setting. Emphasis is placed on the application of principles and procedures of four-handed dentistry and laboratory and clinical support functions. Upon completion, students should be able to utilize classroom theory and laboratory and clinical skills in a dental setting.

DEN 107 Clinical Practice II 1 0 12 5
 Prerequisites: DEN 106
 Corequisites: None
 This course is designed to increase the level of proficiency in assisting in a clinical setting. Emphasis is placed on the application of principles and procedures of four-handed dentistry and laboratory and clinical support functions. Upon completion, students should be able to combine theoretical and ethical principles necessary to perform entry-level skills including functions delegable to a DA II.

DEN 110 Orofacial Anatomy 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the structures of the head, neck, and oral cavity. Topics include tooth morphology, head and neck anatomy, histology, and embryology. Upon completion, students should be able to relate the identification of normal structures and development to the practice of dental assisting and dental hygiene.

DEN 111 Infection/Hazard Control 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the infection and hazard control procedures necessary for the safe practice of dentistry. Topics include microbiology, practical infection control, sterilization and monitoring, chemical disinfectants, aseptic technique, infectious diseases, OSHA standards, and applicable North Carolina laws. Upon completion, students should be able to understand infectious diseases, disease transmission, infection control procedures, biohazard management, OSHA standards, and applicable North Carolina laws.

DEN 112 Dental Radiography 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course provides a comprehensive view of the principles and procedures of radiology as they apply to dentistry. Topics include techniques in exposing, processing, and evaluating radiographs, as well as radiation safety, quality assurance, and legal issues. Upon completion, students should be able to demonstrate proficiency in the production of diagnostically acceptable radiographs using appropriate safety precautions.

DEN 120 Dental Hygiene Preclinical Lecture 2 0 0 2
 Prerequisites: None
 Corequisites: DEN 121
 This course introduces preoperative and clinical dental hygiene concepts. Emphasis is placed on the assessment phase of patient care as well as the theory of basic dental hygiene instrumentation. Upon completion, students should be able to collect and evaluate patient data at a basic level and demonstrate knowledge of dental hygiene instrumentation

DEN 121 Dental Hygiene Preclinical Lab 0 6 0 2
 Prerequisites: None
 Corequisites: DEN 120
 This course provides the opportunity to perform clinical dental hygiene procedures discussed in DEN 120. Emphasis is placed on clinical skills in patient assessment and instrumentation techniques. Upon completion, students should be able to demonstrate the ability to perform specific preclinical procedures.

DEN 123 Nutrition/Dental Health 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces basic principles of nutrition with emphasis on nutritional requirements and their application to individual patient needs. Topics include the study of the food pyramid, nutrient functions, Recommended Daily Allowances, and related psychological principles. Upon completion, students should be able to recommend and counsel individuals on their food intake as related to their dental health.

DEN 124 Periodontology 2 0 0 2
 Prerequisites: DEN 110
 Corequisites: None
 This course provides an in-depth study of the periodontium, periodontal pathology, periodontal monitoring, and the principles of periodontal therapy. Topics include periodontal anatomy and a study of the etiology, classification, and treatment modalities of periodontal diseases. Upon completion, students should be able to describe, compare, and contrast techniques involved in periodontal/maintenance therapy, as well as patient care management.

DEN 125 Dental Office Emergencies 0 2 0 1
 Prerequisites: None
 Corequisites: None
 This course provides a study of the management of dental office emergencies. Topics include methods of prevention, necessary equipment/drugs, medicolegal considerations, recognition and effective initial management of a variety of emergencies. Upon completion, the student should be able to recognize, assess and manage various dental office emergencies and activate advanced medical support when indicated.

DEN 130 Dental Hygiene Theory I 2 0 0 2
 Prerequisites: DEN 120
 Corequisites: DEN 131
 This course is a continuation of the didactic dental hygiene concepts necessary for providing an oral prophylaxis. Topics include deposits/removal, instrument sharpening, patient education, fluorides, planning for dental hygiene treatment, charting, and clinical records and procedures. Upon completion, students should be able to demonstrate knowledge needed to complete a thorough oral prophylaxis.

DEN 131 Dental Hygiene Clinic I 0 0 9 3
 Prerequisites: DEN 121
 Corequisites: DEN 130
 This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of the recall patients with gingivitis or light deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.

DEN 140 Dental Hygiene Theory II 1 0 0 1
 Prerequisites: DEN 130
 Corequisites: DEN 141
 This course provides a continuation of the development, theory, and practice of patient care. Topics include modification of treatment for special needs patients, advanced radiographic interpretation, and ergonomics. Upon completion, students should be able to differentiate necessary treatment modifications, effective ergonomic principles, and radiographic abnormalities.

DEN 141 Dental Hygiene Clinic II 0 0 6 2
 Prerequisites: DEN 131
 Corequisites: DEN 140
 This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of patients with early periodontal disease and subgingival deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.

DEN 220 Dental Hygiene Theory III 2 0 0 2
 Prerequisites: DEN 140
 Corequisites: DEN 221
 This course provides a continuation in developing the theories and practices of patient care. Topics include periodontal debridement, pain control, subgingival irrigation, air polishing, and case presentations. Upon completion, students should be able to demonstrate knowledge of methods of treatment and management of periodontally compromised patients.

DEN 221 Dental Hygiene Clinic III 0 0 12 4
 Prerequisites: DEN 141
 Corequisites: DEN 220
 This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of patients with moderate to advanced periodontal involvement and moderate deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.

DEN 222 General and Oral Pathology 2 0 0 2
 Prerequisites: BIO 163 or BIO 165 or BIO 168
 Corequisites: None
 This course provides a general knowledge of oral pathological manifestations associated with selected systemic and oral diseases. Topics include developmental and degenerative diseases, selected microbial diseases, specific and nonspecific immune and inflammatory responses with emphasis on recognizing abnormalities. Upon completion, students should be able to differentiate between normal and abnormal tissues and refer unusual findings to the dentist for diagnosis.

DEN 223 Dental Pharmacology 2 0 0 2
 Prerequisites: None
 Corequisites: BIO 163 or BIO 165 or BIO 168
 This course provides basic drug terminology, general principles of drug actions, dosages, routes of administration, adverse reactions, and basic principles of anesthesiology. Emphasis is placed on knowledge of drugs in overall understanding of patient histories and health status. Upon completion, students should be able to recognize that each patient's general health or drug usage may require modification of the treatment procedures.

DEN 224 Materials and Procedures 1 3 0 2
 Prerequisites: DEN 111
 Corequisites: None
 This course introduces the physical properties of materials and related procedures used in dentistry. Topics include restorative and preventive materials, fabrication of casts and appliances, and chairside functions of the dental hygienist. Upon completion, students should be able to demonstrate proficiency in the laboratory and/or clinical application of routinely used dental materials and chairside functions.

DEN 230 Dental Hygiene Theory IV 1 0 0 1
 Prerequisites: DEN 220
 Corequisites: DEN 231
 This course provides an opportunity to increase knowledge of the profession. Emphasis is placed on dental specialties and completion of a case presentation. Upon completion, students should be able to demonstrate knowledge of various disciplines of dentistry and principles of case presentations.

DEN 231 Dental Hygiene Clinic IV 0 0 12 4
 Prerequisites: DEN 221
 Corequisites: DEN 230
 This course continues skill development in providing an oral prophylaxis. Emphasis is placed on periodontal maintenance and on treating patients with moderate to advanced/refractory periodontal disease. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.

DEN 232 Community Dental Health 2 0 3 3
 Prerequisites: None
 Corequisites: None
 This course provides a study of the principles and methods used in assessing, planning, implementing, and evaluating community dental health programs. Topics include epidemiology, research methodology, biostatistics, preventive dental care, dental health education, program planning, and financing and utilization of dental services. Upon completion, students should be able to assess, plan, implement, and evaluate a community dental health program.

DEN 233 Professional Development 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course includes professional development, ethics, and jurisprudence with applications to practice management. Topics include conflict management, state laws, résumés, interviews, and legal liabilities as health care professionals. Upon completion, students should be able to demonstrate the ability to practice dental hygiene within established ethical standards and state laws.

DFT 111 Technical Drafting I 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces basic drafting skills, equipment, and applications. Topics include sketching, measurements, lettering, dimensioning, geometric construction, orthographic projections and pictorials drawings, sections, and auxiliary views. Upon completion, students should be able to understand and apply basic drawing principles and practices. This course is an introduction to CAD using AutoCAD software.

DFT 111A Technical Drafting I Lab 0 3 0 1
 Prerequisites: None
 Corequisites: DFT 111
 This course provides a laboratory setting to enhance basic drafting skills. Emphasis is placed on practical experiences that enhance the topics presented in DFT 111. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in DFT 111.

DFT 112 Technical Drafting II 1 3 0 2
 Prerequisites: DFT 111
 Corequisites: None
 This course provides for advanced drafting practices and procedures. Topics include detailed working drawings, hardware, fits and tolerances, assembly and sub-assembly, geometric dimensioning and tolerancing, intersections, and developments. Upon completion, students should be able to produce detailed working drawings.

DFT 112A Technical Drafting II Lab 0 3 0 1
 Prerequisites: None
 Corequisites: DFT 112
 This course provides a laboratory setting to enhance advance drafting skills. Emphasis is placed on practical experiences that enhance the topics presented in DFT 112. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in DFT 112.

DFT 115 Architectural Drafting 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces basic drafting practices used in residential and light commercial design. Topics include floor plans, foundations, details, electrical components, elevations, and dimensioning practice. Upon completion, students should be able to complete a set of working drawings for a simple structure

DFT 119 Basic CAD 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces computer-aided drafting software for specific technologies to non-drafting majors. Emphasis is placed on understanding the software command structure and drafting standards for specific technical fields. Upon completion, students should be able to create and plot basic drawings. This course is an introduction to MicroStation software

DFT 120 Advanced CAD 1 2 0 2
 Prerequisites: DFT 119
 Corequisites: None
 This course is designed for non-drafting majors to build upon basic computer-aided drafting skills by the use of application-specific assignments. Emphasis is placed on advanced 2D, 3D, isometric, and modeling applications via the CAD system. Upon completion, students should be able to generate, manage, and output engineering drawings via the computer, printer, and plotter. This course is an introduction to GEOPAK software.

DFT 121 Introduction to GD and T 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces basic geometric dimensioning and tolerancing principles. Topics include symbols, annotation, theory, and applications. Upon completion, students should be able to interpret and apply basic geometric dimensioning and tolerancing principles to drawings.

DFT 151 CAD I 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces CAD software as a drawing tool. Topics include drawing, editing, file management, and plotting. Upon completion, students should be able to produce and plot a CAD drawing. This course is advanced CAD using AutoCAD software.

DFT 152 CAD II 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course is a continuation of DFT 151. Topics include advanced two-dimensional, three-dimensional, and solid modeling and extended CAD applications. Upon completion, students should be able to generate and manage CAD drawings and models to produce engineering documents. This course is an introduction to solid modeling using SolidWorks.

DFT 153 CAD III 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course covers basic principles of three-dimensional CAD wireframe and surface models. Topics include user coordinate systems, three-dimensional viewpoints, three-dimensional wireframes, and surface components and viewpoints. Upon completion, students should be able to create and manipulate three-dimensional wireframe and surface models. This course is focuses on solid modeling using Inventor software.

DFT 154 Introduction to Solid Models/Rendering 2 3 0 3
 Prerequisites: DFT 111 or DFT 170
 Corequisites: None
 This course covers basic principles of three-dimensional CAD wireframe and surface models. Topics include user coordinate systems, three-dimensional viewpoints, three-dimensional wireframes, and surface components and viewpoints. Upon completion, students should be able to create and manipulate three-dimensional wireframe and surface models. This course is advanced solid modeling using ProE software.

DFT 161 Pattern Design and Layout 1 2 0 2
 Prerequisites: None
 Corequisites: DFT 151
 This course covers the layout of sheet metal and pipe fittings. Topics include the development of patterns and templates for metalworking industries. Upon completion, students should be able to develop, sketch, produce, and angle layouts.

DFT 170 Engineering Graphics 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces basic engineering graphics skills, equipment, and applications (manual and computer-aided). Topics include sketching, measurements, lettering, dimensioning, geometric construction, orthographic projections and pictorial drawings, and sectional and auxiliary views. Upon completion, students should be able to demonstrate an understanding of basic engineering graphics principles and practices.

DFT 214 Descriptive Geometry 1 2 0 2
 Prerequisites: DFT 111, DFT 111A
 Corequisites: None
 This course includes a graphic analysis of space problems. Topics include points, lines, planes, connectors, and combinations of these. Upon completion, students should be able to solve real world spatial problems using descriptive geometry techniques.

DFT 221 Electrical Drafting 2 6 0 4
 Prerequisites: DFT 111, DFT 111A, DFT 151
 Corequisites: None
 This course covers the practices used for making electrical drawings. Emphasis is placed on symbol identification and various types of electrical diagrams. Upon completion, students should be able to properly utilize electrical symbols in the construction of various electrical diagrams.

DFT 231 Jig & Fixture Design 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the study of jigs and fixtures. Topics include different types, components, and uses of jigs and fixtures. Upon completion, students should be able to analyze, design, and complete a set of working drawings for a jig or fixture.

DFT 254 Intermediate Solid Models/Rendering 2 3 0 3
 Prerequisites: DFT 154
 Corequisites: None
 This course presents a continuation of basic three-dimensional solid modeling and design software. Topics include advanced study of parametric design, creation, editing, rendering and analysis of solid model assemblies, and multiview drawing generation. Upon completion, students should be able to use parametric design techniques to create and analyze the engineering design properties of a model assembly.

DRA 111 Theatre Appreciation 3 0 0 3
 Prerequisites: ENG 090, RED 090
 Corequisites: None
 This course provides a study of the art, craft, and business of the theatre. Emphasis is placed on the audience's appreciation of the work of the playwright, director, actor, designer, producer, and critic. Upon completion, students should be able to demonstrate a vocabulary of theatre terms and to recognize the contributions of various theatre artists.

DRA 112 Literature of the Theatre 3 0 0 3
 Prerequisites: ENG 090, RED 090
 Corequisites: None
 This course provides a survey of dramatic works from the classical Greek through the present. Emphasis is placed on the language of drama, critical theory, and background as well as on play reading and analysis. Upon completion, students should be able to articulate, orally and in writing, their appreciation and understanding of dramatic works.

DRA 115 Theatre Criticism 3 0 0 3
 Prerequisites: DRA 111
 Corequisites: None
 This course is designed to develop a critical appreciation of the theatre from the viewpoint of the audience/consumer. Emphasis is placed on viewing, discussing, and evaluating selected theatre performance, either live or on film/video. Upon completion, students should be able to express their critical judgments both orally and in writing.

DRA 120 Voice for Performance 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides guided practice in the proper production of speech for the theatre. Emphasis is placed on improving speech, including breathing, articulation, pronunciation, and other vocal variables. Upon completion, students should be able to demonstrate effective theatrical speech.

DRA 122 Oral Interpretation 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the dramatic study of literature through performance. Emphasis is placed on analysis and performance of poetry, drama, and prose fiction. Upon completion, students should be able to embody and discuss critically the speakers inherent in literature.

DRA 124 Readers Theatre 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides a theoretical and applied introduction to the medium of readers' theatre. Emphasis is placed on the group performance considerations posed by various genres of literature. Upon completion, students should be able to adapt and present a literary script following the conventions of readers' theatre.

DRA 126 Storytelling 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the art of storytelling and the oral traditions of folk literature. Topics include the history of storytelling, its value and purpose, techniques of the storyteller, and methods of collecting verbal art. Upon completion, students should be able to present and discuss critically stories from the world's repertory of traditional lore.

DRA 128 Children's Theatre 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the philosophy and practice involved in producing plays for young audiences. Topics include the selection of age-appropriate scripts and the special demands placed on directors, actors, designers, and educators in meeting the needs of young audiences. Upon completion, students should be able to present and critically discuss productions for children.

DRA 130 Acting I 0 6 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an applied study of the actor's craft. Topics include role analysis, training the voice, and body concentration, discipline, and self-evaluation. Upon completion, students should be able to explore their creativity in an acting ensemble.

DRA 131 Acting II 6 0 3
 Prerequisites: DRA 130
 Corequisites: None
 This course provides additional hands-on practice in the actor's craft. Emphasis is placed on further analysis, characterization, growth, and training for acting competence. Upon completion, students should be able to explore their creativity in an acting ensemble.

DRA 132 Stage Movement 2 2 0 3
 Prerequisites: None
 Corequisites: DRA 111
 This course provides an applied study of selected principles of stage movement for actors. Topics include improvisation, mime, stage combat, clowning, choreography, and masks. Upon completion, students should be able to focus properly on stage, to create characters, and to improvise scenes, perform mimes, fight, clown, juggle, and waltz.

DRA 140 Stagecraft I 0 6 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the theory and basic construction of stage scenery and properties. Topics include stage carpentry, scene painting, stage electrics, properties, and backstage organization. Upon completion, students should be able to pursue vocational and avocational roles in technical theatre.

DRA 141 Stagecraft II 0 6 0 3
 Prerequisites: DRA 140
 Corequisites: None
 This course provides additional hands-on practice in the elements of stagecraft. Emphasis is placed on the design and implementation of the arts and crafts of technical theatre. Upon completion, students should be able to pursue vocational or a vocational roles in technical theatre.

DRA 145 Stage Make-up 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course covers the research, design, selection of materials, and application of stage make-up, prosthetics, wigs, and hairpieces. Emphasis is placed on the development of techniques, style, and presentation of the finished make-up. Upon completion, students should be able to create and apply make-up, prosthetics, and hairpieces.

DRA 150 Stage Management 3 0 0 3
 Prerequisites: DRA 140
 Corequisites: None
 This course covers the skills necessary for a stage manager of school or professional productions. Emphasis is placed on scheduling, rehearsal documentation and management, personnel, paperwork, and organization. Upon completion, students should be able to effectively stage-manage entertainment productions.

DRA 170 Play Production I 0 9 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.

DRA 171 Play Production II 0 9 0 3
 Prerequisites: DRA 170
 Corequisites: None
 This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.

DRA 230 Acting III 0 6 0 3
 Prerequisites: DRA 131
 Corequisites: None
 This course is designed to include an exploration of acting styles. Emphasis is placed on putting the actor's skills to work in a major theatrical form—musical, comedy, or drama. Upon completion, students should be able to explore their creativity in an acting ensemble.

DRA 231 Acting IV 0 6 0 3
 Prerequisites: DRA 230
 Corequisites: None
 This course is designed to include further exploration of acting styles. Emphasis is placed on putting the actor's skills to work in a major theatrical form—musical, comedy, or drama. Upon completion, students should be able to explore their creativity in an acting ensemble.

DRA 243 Scene Design 2 2 0 3
 Prerequisites: DRA 140
 Corequisites: None
 This course covers the analysis, research, design, and problem solving related to scene design. Emphasis is placed on director/designer communication, concepting, researching, rendering, and modeling of designs. Upon completion, students should be able to demonstrate skills in communication, design process, rendering, and modeling.

DRA 260 Directing 0 6 0 3
 Prerequisites: DRA 130
 Corequisites: DRA 140
 This course provides an analysis and application of the techniques of theatrical directing. Topics include script selection, analysis, casting, rehearsal planning, blocking, stage business, tempo, and technical considerations. Upon completion, students should be able to plan, execute, and critically discuss a student-directed production.

DRA 270 Play Production III 0 9 0 3
 Prerequisites: DRA 171
 Corequisites: None
 This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.

DRA 271 Play Production IV 0 9 0 3
 Prerequisites: DRA 270
 Corequisites: None

This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.

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ECM 168 Electronic Business 2 2 0 3
 Prerequisites: None
 Corequisites: None

This course provides a survey of the world of electronic business. Topics include the definition of electronic business, current practices as they evolve using Internet strategy in business, and application of basic business principles to the world of Electronic Commerce. Upon completion, students should be able to define electronic business and demonstrate an understanding of the benefits of Electronic Commerce as a foundation for developing plans leading to electronic business implementation.

ECM 210 Introduction to Electronic Commerce 2 2 0 3

Prerequisites: ECM 168
 Corequisites: None
 This course introduces the concepts and tools to implement electronic commerce via the Internet. Topics include application and server software selection, securing transactions, use and verification of credit cards, publishing of catalogs, and site administration. Upon completion, students should be able to setup a working Electronic Commerce Internet web site. Discussions of various business strategies, business models, managerial issues, and current research in e-commerce will be included.

ECM 220 Electronic Commerce Planning and Implementation 2 2 0 3

Prerequisites: ECM 210, WEB 110, WEB 111, WEB 140
 Corequisites: None
 This course builds on currently accepted business practices to develop a business plan and implementation model for Electronic Commerce. Topics include analysis and synthesis of the planning cycle, cost/benefit analysis, technical systems, marketing, security, financial support, Internet strategies, website design, customer support and feedback and assessment. Upon completion, students should be able to develop a plan for Electronic Commerce in a small to medium size business.

ECM 230 Capstone Project 1 6 0 3

Prerequisites: ECM 220
 Corequisites: None
 This course provides experience in Electronic Commerce. Emphasis is placed on the implementation of an Electronic Commerce model for an existing business. Upon completion, students should be able to successfully develop and implement a plan for Electronic Commerce in a small to medium size business.

ECO 151 Survey of Economics 3 0 0 3
 Prerequisites: RED 090
 Corequisites: None
 This course introduces basic concepts of micro- and macroeconomics. Topics include supply and demand, optimizing economic behavior, prices and wages, money, interest rates, banking system, unemployment, inflation, taxes, government spending, and international trade. Upon completion, students should be able to explain alternative solutions for economic problems faced by private and government sectors.

ECO 251 Principles of Microeconomics 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces economic analysis of individual, business, and industry choices in the market economy. Topics include the price mechanism, supply and demand, optimizing economic behavior, costs and revenue, market structures, factor markets, income distribution, market failure, and government intervention. Upon completion, students should be able to identify and evaluate consumer and business alternatives in order to efficiently achieve economic objectives.

ECO 252 Principles of Macroeconomics 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces economic analysis of aggregate employment, income, and prices. Topics include major schools of economic thought; aggregate supply and demand; economic measures, fluctuations, and growth; money and banking; stabilization techniques; and international trade. Upon completion, students should be able to evaluate national economic components, conditions, and alternatives for achieving socioeconomic goals.

EDU 113 Family/Early Child Credentials 2 0 0 2
 Prerequisites: EDU 119
 Corequisites: None
 This course covers business/professional practices for family early childhood providers, developmentally appropriate practices, positive guidance, and methods of providing a safe and healthy environment. Topics include developmentally appropriate practices; health, safety and nutrition; and business and professionalism. Upon completion, students should be able to develop a handbook of policies, procedures, and practices for a family child care home.

EDU 119 Introduction to Early Childhood Education 4 0 0 4
 Prerequisites: None
 Corequisites: None
 This course covers the foundations of the education profession, the diverse educational settings for young children, professionalism and planning developmentally appropriate programs for children. Topics include historical foundations, program types, career options, professionalism, and creating inclusive environments and curriculum that are responsive to the needs of children and families. Upon completion, students should be able design career plans and develop appropriate schedules, environments and activity plans while incorporating adaptations for children with exceptionalities. *This course is also available through the Virtual Learning Community (VLC).*

EDU 131 Child, Family, and Community 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the development of partnerships between families, inclusive programs for children/schools that serve young children with and without disabilities, and the community. Emphasis is placed on requisite skills and benefits for successfully establishing, supporting, and maintaining respectful collaborative relationships between today's diverse families, centers/schools, and community resources. Upon completion, students should be able to describe appropriate relationships with parents/caretakers, center/school colleagues, and community agencies that enhance the educational experiences/well-being of all children. *This course is also available through the Virtual Learning Community (VLC).*

EDU 144 Child Development I 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the theories of child development, developmental sequences, and factors that influence children's development, from conception through pre-school for all children. Emphasis is placed on sequences in physical/motor, social, emotional, cognitive, and language development and the multiple influences on development and learning of the whole child. Upon completion, students should be able to identify typical and atypical developmental characteristics, plan experiences to enhance development, and describe appropriate interaction techniques and environments. *This course is also available through the Virtual Learning Community (VLC).*

EDU 145 Child Development II 3 0 0 3
 Prerequisites: EDU 144
 Corequisites: None
 This course covers theories of child development and developmental sequences of children from pre-school through middle childhood for early childhood educators. Emphasis is placed on characteristics of physical/motor, social, emotional, and cognitive/language development and appropriate experiences for children. Upon completion, students should be able to identify developmental characteristics, plan experiences to enhance development, and describe appropriate interaction techniques and environments.

EDU 146 Child Guidance 3 0 0 3
 Prerequisites: EDU 144 or EDU 119
 Corequisites: None
 This course introduces practical principles and techniques for providing developmentally appropriate guidance for all children with and without disabilities, including those at risk. Emphasis is placed on encouraging self-esteem, cultural awareness, effective communication skills, direct/indirect techniques/strategies and observation to understand the underlying causes of behavior. Upon completion, students should be able to demonstrate appropriate interactions with children and families and promote conflict resolution, self-control, self-motivation, and self-esteem in children. *This course is also available through the Virtual Learning Community (VLC).*

EDU 151 Creative Activities 3 0 0 3
 Prerequisites: EDU 145, EDU 146, EDU 157, EDU 185, ENG 111
 Corequisites: COE 121
 This course covers planning, creation and adaptation of developmentally supportive learning environments with attention to curriculum, interactions, teaching practices and learning materials. Emphasis is placed on creating and adapting integrated, meaningful, challenging and engaging developmentally supportive learning experiences in art, music, movement and physical skills, and dramatics. Upon completion, students should be able to create, manage, adapt and evaluate developmentally supportive learning materials, experiences and environments.

EDU 152 Music, Movement, and Language 3 0 0 3
 Prerequisites: EDU 151, EDU 157, ENG 111, ENG 112
 Corequisites: COE 211
 This course introduces a historical perspective of music and movement and integrates the whole language concept with emphasis on diversity. Emphasis is placed on designing an environment that emphasizes language development through developmentally and culturally appropriate music and movement. Upon completion, students should be able to design an environment that develops language through a music and movement curriculum that emphasizes diversity.

EDU 153 Health, Safety, and Nutrition 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course focuses on promoting and maintaining the health and well-being of all children. Topics include health and nutritional guidelines, common childhood illnesses, maintaining safe and healthy learning environments, recognizing and reporting of abuse and neglect and state regulations. Upon completion, students should be able to demonstrate knowledge of health, safety, and nutritional needs, implement safe learning environments, and adhere to state regulations.

EDU 157 Active Play 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the use of indoor and outdoor physical activities to promote the physical, cognitive, and social/emotional development of children. Topics include the role of active play, development of play skills, playground design, selection of safe equipment, and materials and surfacing for active play. Upon completion, students should be able to discuss the stages of play, the role of teachers in play, and the design of appropriate active play areas and activities.

EDU 185 Cognitive and Language Activities 3 0 0 3
 Prerequisites: EDU 119, EDU 144, EDU 157, ENG 111
 Corequisites: COE 111
 This course covers methods of developing cognitive and language/communication skills in children. Emphasis is placed on planning the basic components of language and cognitive processes in developing curriculum activities. Upon completion, students should be able to identify, plan, select materials and equipment, and implement and evaluate developmentally appropriate curriculum activities. This course correlates with COE 111.

EDU 188 Issues in Early Childhood Education 2 0 0 2
 Prerequisites: EDU 151, EDU 185, EDU 251
 Corequisites: None
 This course covers topics and issues in early childhood education. Emphasis is placed on current advocacy issues, emerging technology, professional growth experiences, and other related topics. Upon completion, students should be able to list, discuss, and explain current topics and issues in early childhood education.

EDU 216 Foundations of Education
(EDU 216 replaced EDU 116) 3 2 4
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course introduces the American educational system and the teaching profession. Topics include historical and philosophical foundations of education, contemporary educational, structural, legal, and financial issues, PRAXIS I preparation and observation and participation in public school classrooms. Upon completion, students should be able to relate classroom observations to the roles of teachers and schools and the process of teacher education.

EDU 221 Children with Exceptional Needs 3 0 0 3
 Prerequisites: EDU 144 and EDU 145 or PSY 244 and PSY 245
 Corequisites: None
 This course, based on the foundation of typical development, introduces working with children with exceptionalities. Emphasis is placed on the characteristics and assessment of children and strategies for adapting the learning environment. Upon completion, students should be able to recognize atypical development, make appropriate referrals, collaborate with families and professionals to plan, implement, and evaluate inclusion strategies.

EDU 234 Infants, Toddlers, and Twos 3 0 0 3
 Prerequisites: EDU 144, EDU 145
 Corequisites: None
 This course covers the skills needed to effectively implement group care for infants, toddlers, and two-year olds. Emphasis is placed on child development and developmentally appropriate practices. Upon completion, students should be able to identify, plan, select materials and equipment, and implement and evaluate a developmentally appropriate curriculum.

EDU 251 Exploration Activities 3 0 0 3
 Prerequisites: EDU 151, EDU 185, ENG 112
 Corequisites: COE 131
 This course covers discovery experiences in science, math, and social studies. Emphasis is placed on developing concepts for each area and encouraging young children to explore, discover, and construct concepts. Upon completion, students should be able to discuss the discovery approach to teaching, explain major concepts in each area, and plan appropriate experiences for children. This course correlates with COE 131.

EDU 261 Early Childhood Administration I 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course covers the policies, procedures, and responsibilities for the management of early childhood education programs. Topics include implementation of goals, principles of supervision, budgeting and financial management, and meeting the standards for a NC Child Day Care license. Upon completion, students should be able to develop program goals, explain licensing standards, determine budgeting needs, and describe effective methods of personnel supervision.

EDU 262 Early Childhood Administration II 3 0 0 3
 Prerequisites: EDU 261
 Corequisites: None
 This course provides a foundation for budgetary, financial, and personnel management of the child care center. Topics include budgeting, financial management, marketing, hiring, supervision, and professional development of a child care center. Upon completion, students should be able to formulate marketing, financial management, and fund development plans and develop personnel policies, including supervision and staff development plans.

EDU 263 Developing School-Age Programs 2 0 0 2
 Prerequisites: EDU 145
 Corequisites: None
 This course introduces the methods and procedures for operating a school-age program in either the public or proprietary setting. Emphasis is placed on constructing and organizing the physical environment as well as planning and developing a school-age program. Upon completion, students should be able to plan and develop a quality school-age program.

EDU 280 Language and Literacy Experiences 3 0 0 3
 Prerequisites: EDU 145, EDU 185
 Corequisites: None
 This course explores the continuum of children's communication development, including verbal and written language acquisition and other forms of communication. Topics include selection of literature and other media, the integration of literacy concepts throughout the classroom environment, inclusive practices and appropriate assessments. Upon completion, students should be able to select, plan, implement and evaluate developmentally appropriate literacy experiences.

EDU 282 Early Childhood Literature 3 0 0 3
 Prerequisites: EDU 185
 Corequisites: None
 This course covers the history, selection, and integration of literature and language in the early childhood curriculum. Topics include the history and selection of developmentally appropriate children's literature and the use of books and other media to enhance language and literacy in the classroom. Upon completion, students should be able to select appropriate books for storytelling, reading aloud, puppetry, flannel board use, and other techniques.

EFL 001 Skills Lab - - - -
 Prerequisites: None
 Corequisites: None
 This skills lab provides supplemental instruction to non-native speakers of English enrolled in pre-curriculum and curriculum classes. The skills lab requires instructor referrals.

EFL 030 English for Special Purposes 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course will provide instruction in academic and professional language for non-native speakers of English. Emphasis is placed on development of integrated language use for carrying out a specific academic task. Upon completion, students should be able to demonstrate improved language skills for participation and success within the particular topic area. This 3-credit elective is appropriate for students who would like to improve accuracy and fluency in spelling and reading of academic English.

EFL 050 English for Academic Purposes 5 0 0 5
 Prerequisites: None
 Corequisites: None
 This course will provide instruction in academic and professional language skills for non-native speakers of English. Emphasis is placed on development of integrated language skills for use in studying a particular content area. Upon completion, students should be able to demonstrate improved academic language, content-specific vocabulary and skills, and cultural knowledge in the topic area. This-5 credit elective is appropriate for students who would like to improve pronunciation of academic English.

EFL 061 Listening/Speaking I 5 0 0 5
 Prerequisites: None
 Corequisites: None
 This course is designed to provide the basic oral/aural language skills needed for essential daily conversation on campus and in the community. Emphasis is placed on vocabulary building, communication in various social and academic situations, and various spoken grammatical skills. Upon completion, students should be able to produce and understand English dealing with routine topics using basic syntax and vocabulary skills. This course is intended for non-native speakers of English.

EFL 062 Listening/Speaking II 5 0 0 5
 Prerequisites: EFL 061
 Corequisites: None
 This course is designed to enhance intermediate listening and speaking skills of non-native speakers of English. Emphasis is placed on the ability to hold extended conversation and on the ability to understand extended spoken discourse. Upon completion, students should be able to demonstrate improved listening skills and strategies in a variety of settings.

EFL 063 Listening/Speaking III 5 0 0 5
 Prerequisites: EFL 062
 Corequisites: None
 This course is designed to increase the ability and confidence of high intermediate-level non-native speakers of English in verbal expression and listening comprehension. Emphasis is placed on listening/speaking skills which would be appropriate for group discussions, oral presentations, and note taking. Upon completion, students should be able to successfully participate in high intermediate-level listening and speaking activities.

EFL 064 Listening/Speaking IV 5 0 0 5
 Prerequisites: EFL 063
 Corequisites: None
 This course is designed to prepare advanced-level non-native speakers of English for academic and professional speaking and listening activities. Emphasis is placed on learning and practicing strategies of effective oral expression and comprehension of spoken discourse in informal and formal settings. Upon completion, students should be able to effectively participate in activities appropriate to academic and professional settings.

EFL 071 Reading I 5 0 0 5
 Prerequisites: None
 Corequisites: None
 This course is designed to help those with literacy skills achieve reading fluency in English at the beginning level. Emphasis is placed on basic academic and cultural vocabulary and reading strategies which include self-monitoring, and recognizing organizational styles and context clues. Upon completion, students should be able to use these strategies to read and comprehend basic academic, narrative, and expository texts. This course is intended for non-native speakers of English.

EFL 072 Reading II 5 0 0 5
 Prerequisites: EFL 071
 Corequisites: None
 This course provides preparation in academic and general purpose reading in order to achieve reading fluency at the low-intermediate level. Emphasis is placed on expanding academic and cultural vocabulary and developing effective reading strategies to improve comprehension and speed. Upon completion, students should be able to read and comprehend narrative and expository texts at the low-intermediate instructional level. This course is intended for non-native speakers of English.

EFL 073 Reading III 5 0 0 5
 Prerequisites: EFL 072
 Corequisites: None
 This course is designed to develop fundamental reading and study strategies at the intermediate level needed for curriculum programs. Emphasis is placed on building vocabulary and cultural knowledge, improving comprehension, and developing study strategies on basic-level college materials and literary works. Upon completion, students should be able to read and comprehend narrative and expository texts at the intermediate instructional level. This course is intended for non-native speakers of English.

EFL 074 Reading IV 5 0 0 5
 Prerequisites: EFL 073
 Corequisites: None
 This course is designed to enhance the academic reading skills for successful reading ability as required in college-level courses. Emphasis is placed on strategies for effective reading and the utilization of these strategies to improve comprehension, analytical skills, recall, and overall reading speed. Upon completion, students should be able to comprehend, synthesize, and critique multi-disciplinary college-level reading/textbook materials. This course is intended for non-native speakers of English.

EFL 081 Grammar I 5 0 0 5
 Prerequisites: None
 Corequisites: EFL 091
 This course provides non-native speakers of English with a variety of fundamental grammatical concepts which enrich language skills and comprehension. Emphasis is on key basic grammatical structures and opportunities for practice which incorporate grammatical knowledge into various skills areas. Upon completion, students should be able to demonstrate comprehension and correct usage of specified grammatical concepts.

EFL 082 Grammar II 5 0 0 5
 Prerequisites: EFL 081
 Corequisites: None
 This course provides non-native speakers of English with a variety of basic grammatical concepts which enrich language skills and comprehension. Emphasis is on key low-intermediate grammatical structures and opportunities for practice which incorporate grammatical knowledge into various skills areas. Upon completion, students should be able to demonstrate by written and oral means the comprehension and correct usage of specified grammatical concepts.

EFL 083 Grammar III 5 0 0 5
 Prerequisites: EFL 082
 Corequisites: None
 This course is designed to provide high-intermediate non-native speakers of English with a knowledge of grammatical structures that improves academic communication. Emphasis is placed on using high-intermediate grammatical structures in meaningful contexts through exercises integrating the use of newly acquired structures with previously learned structures. Upon completion, students should be able to demonstrate improved proficiency, comprehension, and grammatical accuracy.

EFL 084 Grammar IV 5 0 0 5
 Prerequisites: EFL 083
 Corequisites: None
 This course is designed to give non-native speakers of English a full understanding of advanced grammatical structures and techniques. Emphasis is placed on oral and written communicative fluency through the study of advanced grammatical forms. Upon completion, students should be able to incorporate the structures covered in both spoken and written form, demonstrating improved proficiency, comprehension, and grammatical accuracy.

EFL 091 Composition I 5 0 0 5
 Prerequisites: None
 Corequisites: EFL 081
 This course introduces basic sentence structure and writing paragraphs. Emphasis is placed on word order, verb tense-aspect system, auxiliaries, word forms, and simple organization and basic transitions in writing paragraphs. Upon completion, students should be able to demonstrate a basic understanding of grammar and ability to write English paragraphs using appropriate vocabulary, organization, and transitions. This course is intended for non-native speakers of English.

EFL 092 Composition II 5 0 0 5
 Prerequisites: EFL 091
 Corequisites: None
 This course provides preparation in low-intermediate academic and general-purpose writing. Emphasis is placed on writing as a process, paragraph development, and basic essay organization. Upon completion, students should be able to write and independently edit and understand the major elements of the writing process, sentence, paragraph, and essay. This course is intended for non-native speakers of English.

EFL 093 Composition III 5 0 0 5
 Prerequisites: EFL 092
 Corequisites: None
 This course covers intermediate-level academic and general-purpose writing. Emphasis is placed on the writing process, content, organization, and language use in formal academic compositions in differing rhetorical modes. Upon completion, students should be able to effectively use the writing process in a variety of rhetorical modes. This course is intended for non-native speakers of English.

EFL 094 Composition IV 5 0 0 5
 Prerequisites: EFL 093
 Corequisites: None
 This course prepares low-advanced non-native speakers of English to determine the purpose of their writing and to write paragraphs and essays to fulfill that purpose. Emphasis is placed on unity, coherence, completeness, audience, and the writing process; and the grammatical forms and punctuation appropriate for each kind of writing. Upon completion, students should be able to write unified, coherent, and complete paragraphs and essays which are grammatical and appropriate for the intended audience. This course is intended for non-native speakers of English.

EFL 095 Composition V 5 0 0 5
 Prerequisites: EFL 094
 Corequisites: None
 This course is designed to prepare advanced non-native speakers of English for college-level composition courses. Emphasis is placed on the study and process of writing formal essays and research papers and the analysis of literary, expository, and descriptive writings. Upon completion, students should be able to write and analyze professional and peer compositions and apply basic research principles. This course is intended for non-native speakers of English.

EGR 115 Introduction to Technology 2 6 0 4
 Prerequisites: None
 Corequisites: None
 This course introduces the basic skills and career fields for technicians. Topics include career options, technical vocabulary, dimensional analysis, measurement systems, engineering graphics, calculator applications, professional ethics, safety practices, and other related topics. Upon completion, students should be able to demonstrate an understanding of the basic technologies, prepare drawings and sketches, and perform computations using a scientific calculator. This course is an introduction to CAD using AutoCAD software.

EGR 125 Appl Software for Tech 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces personal computer software and teaches students how to customize the software for technical applications. Emphasis is placed on the use of common office applications software such as spreadsheets, word processing, graphics, and Internet access. Upon completion, students should be able to demonstrate competency in using applications software to solve technical problems and communicate the results in text and graphical formats.

EGR 130 Engineering Cost Control 2 2 0 3
 Prerequisites: MAT 121, MAT 161, or MAT 171
 Corequisites: None
 This course covers the management of projects and systems through the control of costs. Topics include economic analysis of alternatives within budget constraints and utilization of the time value of money approach. Upon completion, students should be able to make choices that optimize profits on both short-term and long-term decisions.

EGR 131 Introduction to Electronics Technology 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the basic skills required for electrical/electronics technicians. Topics include soldering/desoldering, safety practices, test equipment, scientific calculators, AWG wire table, the resistor color code, electronic devices, problem solving, and use of hand tools. Upon completion, students should be able to solder/desolder, operate test equipment, apply problem-solving techniques, and use a scientific calculator.

EGR 285 Design Project 0 4 0 2
 Prerequisites: None
 Corequisites: None
 This course provides the opportunity to design and construct an instructor-approved project using previously acquired skills. Emphasis is placed on selection, proposal, design, construction, testing, and documentation of the approved project. Upon completion, students should be able to present and demonstrate operational projects.

ELC 110 Telecommunications Circuits/Devices 3 3 0 4
 Prerequisites: None
 Corequisites: None
 This course introduces the basic AC/DC components, semiconductor-based devices, and other related components as applied to telecom circuits. Emphasis is placed on analysis, applications, and testing of these circuits. Upon completion, students will be able to construct, verify, analyze, and troubleshoot these circuits.

ELC 111 Introduction to Electricity 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the fundamental concepts of electricity and test equipment to non-electrical/electronic majors. Topics include basic DC and AC principles (voltage, resistance, current, impedance); components (resistors, inductors, and capacitors); power; and operation of test equipment. Upon completion, students should be able to construct and analyze simple DC and AC circuits using electrical test equipment.

ELC 112 DC/AC Electricity 3 6 0 5
 Prerequisites: None
 Corequisites: None
 This course introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment; and other related topics. Upon completion, students should be able to construct, verify, and analyze simple DC/AC circuits.

ELC 112a DC/AC Electricity-Part 1 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This is Part 1 of a course that introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment; and other related topics. Upon completion of Parts 1 and 2, students should be able to construct, verify, and analyze simple DC/AC circuits.

ELC 112b DC/AC Electricity-Part 2 1 3 0 2
 Prerequisites: ELC 112a
 Corequisites: None
 This is Part 2 of a course that introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment; and other related topics. Upon completion of Parts 1 and 2, students should be able to construct, verify, and analyze simple DC/AC circuits.

ELC 113 Basic Wiring I 2 6 0 4
 Prerequisites: None
 Corequisites: ELC 112
 This course introduces the care/usage of tools and materials used in electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical blueprint reading; planning, layout; and installation of electrical distribution equipment; lighting; overcurrent protection; conductors; branch circuits; and conduits. Upon completion, students should be able to properly install conduits, wiring, and electrical distribution equipment associated with basic electrical installations.

ELC 113a Basic Wiring I-Part 1 1 3 0 2
 Prerequisites: None
 Corequisites: ELC 112a
 This is Part 1 of a course that introduces the care/usage of tools and materials used in electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical blueprint reading; planning, layout; and installation of electrical distribution equipment; lighting; overcurrent protection; conductors; branch circuits; and conduits. Upon completion of parts 1 and 2, students should be able to properly install conduits, wiring, and electrical distribution equipment associated with basic electrical installations.

ELC 113b Basic Wiring I-Part 2 1 3 0 2
 Prerequisites: ELC 113a
 Corequisites: ELC 112b
 This is Part 2 of a course that introduces the care/usage of tools and materials used in electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical blueprint reading; planning, layout; and installation of electrical distribution equipment; lighting; overcurrent protection; conductors; branch circuits; and conduits. Upon completion of Parts 1 and 2, students should be able to properly install conduits, wiring, and electrical distribution equipment associated with basic electrical installations.

ELC 114 Basic Wiring II 2 6 0 4
 Prerequisites: ELC 113
 Corequisites: None
 This course provides additional instruction in the application of electrical tools, materials, and test equipment associated with electrical installations. Topics include the NEC; safety; electrical blueprints; planning, layout, and installation of equipment and conduits; and wiring devices such as panels and overcurrent devices. Upon completion, students should be able to properly install equipment and conduit associated with electrical installations.

ELC 114a Basic Wiring II-Part 1 1 3 0 2
 Prerequisites: ELC 113
 Corequisites: None
 This is Part 1 of a course that provides additional instruction in the application of electrical tools, materials, and test equipment associated with electrical installations. Topics include the NEC; safety; electrical blueprints; planning, layout, and installation of equipment and conduits; and wiring devices such as panels and overcurrent devices. Upon completion of Parts 1 and 2, students should be able to properly install equipment and conduit associated with electrical installations.

ELC 114b Basic Wiring II-Part 2 1 3 0 2
 Prerequisites: ELC 114a
 Corequisites: None
 This is Part 2 of a course that provides additional instruction in the application of electrical tools, materials, and test equipment associated with electrical installations. Topics include the NEC; safety; electrical blueprints; planning, layout, and installation of equipment and conduits; and wiring devices such as panels and overcurrent devices. Upon completion of Parts 1 and 2, students should be able to properly install equipment and conduit associated with electrical installations.

ELC 115 Industrial Wiring 2 6 0 4
 Prerequisites: ELC 113
 Corequisites: None
 This course covers layout, planning, and installation of wiring systems in industrial facilities. Emphasis is placed on industrial wiring methods and materials. Upon completion, students should be able to install industrial systems and equipment.

ELC 116 Telecommunications Cabling 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the theory and practical application of both copper and fiber cabling for telecom systems. Topics include transmission theory, noise, standards, cable types and systems, connectors, physical layer components, installation, and ground/shielding techniques. Upon completion, students should be able to choose the correct cable, install, test, and troubleshoot cabling for telecom.

ELC 117 Motors and Controls 2 6 0 4
 Prerequisites: ELC 111, ELC 112, or ELC 131
 Corequisites: None
 This course introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion, students should be able to properly select, connect, and troubleshoot motors and control circuits.

ELC 117a Motors and Controls-Part 1 1 3 0 2
 Prerequisites: ELC 111, ELC 112, or ELC 131
 Corequisites: None
 This is Part 1 of a course that introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion of Parts 1 and 2, students should be able to properly select, connect, and troubleshoot motors and control circuits.

ELC 117b Motors and Controls- Part 2 1 3 0 2
 Prerequisites: ELC 117a
 Corequisites: None
 This is Part 2 of a course that introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion of Parts 1 and 2, students should be able to properly select, connect, and troubleshoot motors and control circuits.

ELC 118 National Electrical Code 1 2 0 2
 Prerequisites: None
 Corequisites: ELC 112, ELC 113
 This course covers the use of the current National Electrical Code. Topics include the NEC history, wiring methods, overcurrent protection, materials, and other related topics. Upon completion, students should be able to effectively use the NEC.

ELC 119 NEC Calculations 1 2 0 2
 Prerequisites: ELC 118
 Corequisites: None
 This course covers branch circuit, feeder, and service calculations. Emphasis is placed on sections of the National Electrical Code related to calculations. Upon completion, students should be able to use appropriate code sections to size wire, conduit, and overcurrent devices for branch circuits, feeders, and service.

ELC 121 Electrical Estimating 1 2 0 2
 Prerequisites: ELC 113, ELC 114
 Corequisites: None
 This course covers the principles involved in estimating electrical projects. Topics include take-offs of materials and equipment, labor, overhead, and profit. Upon completion, students should be able to estimate simple electrical projects.

ELC 126 Electrical Computations 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the fundamental applications of mathematics that are used by an electrical/electronics technician. Topics include whole numbers, fractions, decimals, powers, roots, simple electrical formulas, and usage of a scientific calculator. Upon completion, students should be able to solve simple electrical mathematical problems.

ELC 126a Electrical Computations- Part 1 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This is Part 1 of a course that introduces the fundamental applications of mathematics that are used by an electrical/electronics technician. Topics included whole numbers, fractions, decimals, powers, roots, simple electrical formulas, and usage of a scientific calculator. Upon completion of Parts 1 and 2, students should be able to solve simple electrical mathematical problems.

ELC 126b Electrical Computations- Part 2 1 0 0 1
 Prerequisites: ELC 126a
 Corequisites: None
 This is Part 2 of a course that introduces the fundamental applications of mathematics that are used by an electrical/electronics technician. Topics included whole numbers, fractions, decimals, powers, roots, simple electrical formulas, and usage of a scientific calculator. Upon completion of Parts 1 and 2, students should be able to solve simple electrical mathematical problems.

ELC 127 Software for Technicians 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces computer software which can be used to solve electrical/electronics problems. Topics include electrical/electronics calculations, applications, and controls. Upon completion, students should be able to utilize a personal computer for electrical/electronics- related applications.

ELC 128 Introduction to PLC 2 3 0 3
 Prerequisites: ELC 117
 Corequisites: None
 This course introduces the programmable logic controller (PLC) and its associated applications. Topics include ladder logic diagrams, input/output modules, power supplies, surge protection, selection/installation of controllers, and interfacing of controllers with equipment. Upon completion, students should be able to install PLCs and create simple programs.

ELC 131 DC/AC Circuit Analysis 4 3 0 5
 Prerequisites: None
 Corequisites: MAT 121
 This course introduces DC and AC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include DC and AC principles, circuit analysis laws and theorems, components, test equipment operation, circuit simulation software, and other related topics. Upon completion, students should be able to interpret circuit schematics; design, construct, verify, and analyze DC/AC circuits; and properly use test equipment.

ELC 134 Transformer Applications 1 2 0 2
 Prerequisites: ELC 112
 Corequisites: ELC 117 or ELC 117a
 This course covers single and three phase transformer applications as found in industrial/commercial buildings and machinery. Topics include transformer principles, single and three phase calculations, and connections. Upon completion, students should be able to understand single and three phase transformers, make transformer connections, and make calculations.

ELC 140 Fundamentals of DC/AC Circuits 5 6 0 7
 Prerequisites: None
 Corequisites: None
 This course covers the principles of DC/AC circuit analysis as applied to electronics. Topics include atomic theory, circuit analysis, components, test equipment, troubleshooting techniques, schematics, diagrams, and other related topics. Upon completion, students should be able to interpret, construct, verify, analyze, and troubleshoot DC/AC circuits in a safe manner.

ELC 229 Applications Project 1 3 0 2
 Prerequisites: ELC 112 or ELC 113
 Corequisites: None
 This course provides an individual and/or integrated team approach to a practical project as approved by the instructor. Topics include project selection and planning, implementation and testing, and a final presentation. Upon completion, students should be able to plan and implement an applications-oriented project.

ELC 231 Electric Power Systems 3 2 0 4
 Prerequisites: None
 Corequisites: None
 This course covers the basic principles of electric power systems, including transmission lines, generator and transformer characteristics, and fault detection and correction. Emphasis is placed on line diagrams and per unit calculations for circuit performance analysis in regards to voltage regulation, power factor, and protection devices. Upon completion, students should be able to analyze simple distribution subsystems, calculate fault current, and determine the size and type of circuit protection devices.

ELC 233 Energy Management 2 2 0 3
 Prerequisites: ELC 231
 Corequisites: None
 This course covers energy management principles and techniques typical of those found in industry and commercial facilities, including load control and peak demand reduction systems. Topics include load and peak demand calculations, load shedding, load balance and power factor, priority scheduling, remote sensing and control, and supplementary/alternative energy sources. Upon completion, students should be able to determine energy management parameters, calculate demand and energy use, propose energy management procedures, and implement alternative energy sources.

ELN 112 Diesel Electronics System 2 6 0 4
 Prerequisites: None
 Corequisites: None
 This course introduces electronic theory and applications as used in medium and heavy duty vehicles. Emphasis is placed on the basic function and operation of semiconductor and integrated circuits. Upon completion, students should be able to identify electronic components, explain their use and function, and use meters and flow charts to diagnose and repair systems.

ELN 113 Electronic Fuel Injection 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course covers the function of the various sensors used to provide feedback control to current model diesel engines. Emphasis is placed on the operation of ECM-controlled fuel injectors and testing using current industry methods. Upon completion, students should be able to obtain information from the electronic fuel system using current test programs, fault tree, and digital meters.

ELN 116 Telecommunications Digital Logic 3 3 0 4
 Prerequisites: None
 Corequisites: None
 This course covers the application of binary logic circuits to digital systems. Emphasis is placed on circuits that are utilized in telecom systems. Upon completion, students will be able to construct, analyze, verify, and troubleshoot telecom digital systems using appropriate techniques and test equipment.

ELN 131 Electronics Devices 3 3 - 4
 Prerequisites: None
 Corequisites: ELC 112, ELC 131, or ELC 140
 This course includes semiconductor-based devices such as diodes, bipolar transistors, FETs, thermistors, and related components. Emphasis is placed on analysis, selection, biasing, and applications in power supplies, small signal amplifiers, and switching and control circuits. Upon completion, students should be able to construct, analyze, verify, and troubleshoot discrete component circuits using appropriate techniques and test equipment.

ELN 132 Linear IC Applications 3 3 0 4
 Prerequisites: ELN 131
 Corequisites: None
 This course introduces the characteristics and applications of linear integrated circuits. Topics include op-amp circuits, differential amplifiers, instrumentation amplifiers, waveform generators, active filters, PLLs, and IC voltage regulators. Upon completion, students should be able to construct, analyze, verify, and troubleshoot linear integrated circuits using appropriate techniques and test equipment.

ELN 133 Digital Electronics 3 3 0 4
 Prerequisites: None
 Corequisites: None
 This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, MSI and LSI circuits, AD/DA conversion, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot digital circuits using appropriate techniques and test equipment. *This course is also available through the Virtual Learning Community (VLC).*

ELN 136 Telecommunications Digital Systems 3 3 0 4
 Prerequisites: None
 Corequisites: None
 This course covers the applications of microprocessors in digital communication circuits. Emphasis is placed on interfacing I/O peripherals, data communication circuits, DSP circuits, UART's modems, and other communication circuits. Upon completion, students will be able to design, construct, verify, analyze, and troubleshoot using appropriate techniques and test equipment.

ELN 140 Semiconductor Devices 4 6 0 6
 Prerequisites: None
 Corequisites: None
 This course covers semiconductor devices and circuits as they apply to the area of electronic servicing. Topics include semiconductor theory, diodes, transistors, linear integrated circuits, biasing, amplifiers, power supplies, and other related topics. Upon completion, students should be able to construct, verify, analyze, and troubleshoot semiconductor circuits.

ELN 141 Digital Fundamentals 4 6 0 6
 Prerequisites: None
 Corequisites: None
 This course covers combinational and sequential logic circuits. Topics include number systems, logic elements, Boolean algebra, Demorgan's theorem, logic families, flip flops, registers, counters, and other related topics. Upon completion, students should be able to analyze, verify, and troubleshoot digital circuits.

ELN 143 Television Servicing 4 6 0 6
 Prerequisites: ELN 140
 Corequisites: None
 This course provides a detailed study of the operation and repair of television receiver systems. Topics include operation, alignment, and repair of television receiver systems. Upon completion, students should be able to troubleshoot, maintain, and repair television receiver systems.

ELN 150 CAD for Electronics 1 3 0 2
 Prerequisites: CIS 110 or CIS 111 or ELC 127
 Corequisites: None
 This course introduces computer-aided drafting (CAD) with an emphasis on applications in the electronics field. Topics include electronics industry standards (symbols, schematic diagrams, layouts); drawing electronic circuit diagrams; and specialized electronic drafting practices and components such as resistors, capacitors, and ICs. Upon completion, students should be able to prepare electronic drawings with CAD software.

ELN 154 Introduction to Data Communications 2 3 0 3
 Prerequisites: ELN 133
 Corequisites: None
 This course introduces the principal elements and theory (analog and digital techniques) of data communication systems and how they are integrated as a complete network. Topics include an overview of data communication, OSI model, transmission modes, serial and parallel interfaces, applications of ICs, protocols, network configurations, modems, and related applications. Upon completion, students should be able to demonstrate knowledge of the concepts associated with data communication systems and high speed networks.

ELN 193 Selected Topics in Electronics Engineering Technology - - - 3
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Electronics Engineering Technology. Emphasis is placed on subject matter appropriate to electronics engineering technology. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ELN 229 Industrial Electronics 2 4 0 4
 Prerequisites: ELC 112, ELC 131, or ELC 140
 Corequisites: None
 This course covers semiconductor devices used in industrial applications. Topics include the basic theory, application, and operating characteristics of semiconductor devices (filters, rectifiers, FET, SCR, Diac, Triac, Op-amps, etc.). Upon completion, students should be able to install and/or troubleshoot these devices for proper operation in an industrial electronic circuit.

ELN 231 Industrial Controls 2 3 0 3
 Prerequisites: ELC 131 or ELC 131 or ELC 140
 Corequisites: None
 This course introduces the fundamental concepts of solid-state control of rotating machinery and associated peripheral devices. Topics include rotating machine theory, ladder logic, electromechanical and solid state relays, motor controls, pilot devices, three-phase power systems, and other related topics. Upon completion, students should be able to interpret ladder diagrams and demonstrate an understanding of electromechanical and electronic control of rotating machinery.

ELN 232 Introduction to Microprocessors 3 3 0 4
 Prerequisites: ELN 133
 Corequisites: None
 This course introduces microprocessor architecture and microcomputer systems including memory and input/output interfacing. Topics include assembly language programming, bus architecture, bus cycle types, I/O systems, memory systems, interrupts, and other related topics. Upon completion, students should be able to interpret, analyze, verify, and troubleshoot fundamental microprocessor circuits and programs using appropriate techniques and test equipment.

ELN 233 Microprocessor Systems 3 3 0 4
 Prerequisites: ELN 232
 Corequisites: None
 This course covers the application and design of microprocessor control systems. Topics include control and interfacing of systems using AD/DA, serial/parallel I/O, communication protocols, and other related applications. Upon completion, students should be able to design, construct, program, verify, analyze, and troubleshoot fundamental microprocessor interface and control circuits using related equipment.

ELN 234 Communication Systems 3 3 0 4
 Prerequisites: ELN 132 or ELN 140
 Corequisites: None
 This course introduces the fundamentals of electronic communication systems. Topics include the frequency spectrum, electrical noise, modulation techniques, characteristics of transmitters and receivers, and digital communications. Upon completion, students should be able to interpret analog and digital communication circuit diagrams, analyze transmitter and receiver circuits, and use appropriate communication test equipment.

ELN 235 Data Communication System 3 3 0 4
 Prerequisites: ELN 133
 Corequisites: None
 This course covers data communication systems and the transmission of digital information from source to destination. Topics include data transmission systems, serial interfaces and modems, protocols, networks, and other related topics. Upon completion, students should be able to demonstrate knowledge of the concepts associated with data communication systems.

ELN 236 Fiber Optics and Lasers 3 2 0 4
 Prerequisites: None
 Corequisites: None
 This course introduces the fundamentals of fiber optics and lasers. Topics include the transmission of light; characteristics of fiber optic and lasers and their systems; fiber optic production; types of lasers; and laser safety. Upon completion, students should be able to understand fiber optic communications and basic laser fundamentals.

ELN 237 Local Area Networks 2 3 0 3
 Prerequisites: CIS 110 or CIS 111 or CET 111 or ELC 127
 Corequisites: None
 This course introduces the fundamentals of local area networks and their operation in business and computer environments. Topics include the characteristics of network topologies, system hardware (repeaters, bridges, routers, gateways), system configuration, and installation and administration of the LAN. Upon completion, students should be able to install, maintain, and manage a local area network.

ELN 240 Microprocessor Fundamentals 3 3 0 4
 Prerequisites: ELN 141
 Corequisites: None
 This course introduces microprocessor architecture and microcomputer systems. Topics include use of technical documentation, bus architecture, I/O and memory systems, and other related topics. Upon completion, students should be able to analyze and troubleshoot basic microprocessor circuits.

ELN 241 Consumer Electronics 4 6 0 6
 Prerequisites: ELC 140
 Corequisites: ELN 140
 This course covers the installation, maintenance, troubleshooting, and repair of consumer electronic products. Topics include the theory, operation, and maintenance of audio systems and personal communications equipment. Upon completion, students should be able to maintain, troubleshoot, and repair consumer electronic products.

ELN 242 Audio Servicing 2 3 0 3
 Prerequisites: ELC 140
 Corequisites: ELN 140
 This course covers the installation, maintenance, troubleshooting, and repair of consumer audio equipment. Topics include the theory, operation, and maintenance of audio equipment. Upon completion, students should be able to maintain, troubleshoot, and repair consumer audio equipment.

ELN 244 Computer Repair 3 6 0 5
 Prerequisites: ELN 133 or ELN 141
 Corequisites: None
 This course covers the assembly, upgrading, and repair of microcomputers. Topics include logic test equipment, computer motherboards, storage devices, I/O devices, power supplies, and other peripherals. Upon completion, students should be able to assemble, upgrade, maintain, troubleshoot, and repair microcomputers.

ELN 246 Certified Electronic Technician Preparation 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers electronic principles, theories, and concepts. Emphasis is placed on those items covered in the Certified Electronic Technician examination. Upon completion, students should be able to demonstrate competence in electronics and be prepared for the Certified Electronic Technician examination.

ELN 252 Introduction to Communication Protocols 2 3 0 3
 Prerequisites: TNE 111, TNE 231
 Corequisites: None
 This course introduces various communication protocols and their place within the OSI Model. Topics include background information, historical protocols, various individual physical, link and network layer protocols, and the integration of individual layer protocols. Upon completion, students should be able to effectively use existing and future communication protocols. Emphasis will be placed on data communications over WAN.

ELN 275 Troubleshooting 1 2 0 2
 Prerequisites: None
 Corequisites: ELN 133 or ELN 141
 This course covers techniques of analyzing and repairing failures in electronic equipment. Topics include safety, signal tracing, use of service manuals, and specific troubleshooting methods for analog, digital, and other electronics-based circuits and systems. Upon completion, students should be able to logically diagnose and isolate faults and perform necessary repairs to meet manufacturers' specifications.

EMS 110 EMT-Basic 5 6 0 7
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course introduces basic emergency medical care. Topics include preparatory, airway, patient assessment, medical emergencies, trauma, infants and children, and operations. Upon completion, students should be able to demonstrate the knowledge and skills necessary to achieve North Carolina State or National Registry EMT-Basic certification.

EMS 120 Intermediate Interventions 2 3 0 3
 Prerequisites: EMS 110
 Corequisites: EMS 121, EMS 130, EMS 131
 This course is designed to provide the necessary information for interventions appropriate to the EMT-Intermediate and is required for intermediate certification. Topics include automated external defibrillation, basic cardiac electrophysiology, intravenous therapy, venipuncture, acid-base balance, and fluids and electrolytes. Upon completion, students should be able to properly establish an IV line, obtain venous blood, utilize AEDs, and correctly interpret arterial blood gases.

EMS 121 EMS Clinical Practicum I 0 0 6 2
 Prerequisites: EMS 110
 Corequisites: EMS 120, EMS 130, EMS 131
 This course is the initial hospital and field internship and is required for intermediate and paramedic certification. Emphasis is placed on intermediate-level care. Upon completion, students should be able to demonstrate competence with intermediate-level skills.

EMS 125 EMS Instructor Methodology 1 2 0 2
 Prerequisites: Enrollment in EMS program
 Corequisites: None
 This course covers the information needed to develop and instruct EMS courses. Topics include instructional methods, lesson plan development, time management skills, and theories of adult learning. Upon completion, students should be able to teach EMS courses and meet the North Carolina EMS requirements for instructor methodology.

EMS 130 Pharmacology I for EMS 1 3 0 2
 Prerequisites: EMS 110
 Corequisites: EMS 120, EMS 131
 This course introduces the fundamental principles of pharmacology and medication administration and is required for intermediate and paramedic certification. Topics include terminology, pharmacokinetics, pharmacodynamics, weights, measures, drug calculations, legislation, and administration routes. Upon completion, students should be able to accurately calculate drug dosages, properly administer medications, and demonstrate general knowledge of pharmacology.

EMS 131 Advanced Airway Management 1 2 0 2
 Prerequisites: EMS 110
 Corequisites: EMS 120, EMS 130
 This course is designed to provide advanced airway management techniques and is required for intermediate and paramedic certification. Topics include respiratory anatomy and physiology, airway, ventilation, adjuncts, surgical intervention, and rapid sequence intubation. Upon completion, students should be able to properly utilize all airway adjuncts and pharmacology associated with airway control and maintenance.

EMS 140	Rescue Scene Management	1	3	0	2
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Prerequisites: Enrollment in EMS program
Corequisites: None
This course introduces rescue scene management and is required for paramedic certification. Topics include response to hazardous material conditions, medical incident command, and extrication of patients from a variety of situations. Upon completion, students should be able to recognize and manage rescue operations based upon initial and follow-up scene assessment.

EMS 150	Emergency Vehicles and EMS Communications	1	3	0	2
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Prerequisites: Enrollment in EMS program
Corequisites: None
This course examines the principles governing emergency vehicles, maintenance of emergency vehicles, and EMS communication equipment and is required for paramedic certification. Topics include applicable motor vehicle laws affecting emergency vehicle operation, defensive driving, collision avoidance techniques, communication systems, and information management systems. Upon completion, students should have a basic knowledge of emergency vehicles, maintenance, and communication needs.

EMS 210	Advanced Patient Assessment	1	3	0	2
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Prerequisites: EMS 120, EMS 121, EMS 130, EMS 131
Corequisites: None
This course covers advanced patient assessment techniques and is required for paramedic certification. Topics include initial assessment, medical-trauma history, field impression, complete physical exam process, on-going assessment, and documentation skills. Upon completion, students should be able to utilize basic communication skills and record and report collected patient data.

EMS 220	Cardiology	2	6	0	4
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Prerequisites: EMS 120, EMS 130, EMS 131
Corequisites: None
This course provides an in-depth study of cardiovascular emergencies and is required for paramedic certification. Topics include anatomy and physiology, pathophysiology, rhythm interpretation, cardiac pharmacology, and patient treatment. Upon completion, students should be able to certify at the Advanced Cardiac Life Support Provider level utilizing American Heart Association guidelines.

EMS 221	EMS Clinical Practicum II	0	0	9	3
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Prerequisites: EMS 121
Corequisites: None
This course is a continuation of the hospital and field internship required for paramedic certification. Emphasis is placed on advanced-level care. Upon completion, students should be able to demonstrate continued progress in advanced-level patient care.

EMS 230	Pharmacology II for EMS	1	3	0	2
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Prerequisites: EMS 130
Corequisites: None
This course explores the fundamental classification and action of common pharmacologic agents. Emphasis is placed on the action and use of compounds most commonly encountered in the treatment of chronic and acutely ill patients. Upon completion, students should be able to demonstrate general knowledge of drugs covered during the course.

EMS 231	EMS Clinical Practicum III	0	0	9	3
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Prerequisites: EMS 221 or EMS 222 and COE 121
Corequisites: None
This course is a continuation of the hospital and field internship required for paramedic certification. Emphasis is placed on advanced-level care. Upon completion, students should be able to demonstrate continued progress in advanced-level patient care.

EMS 235	EMS Management	2	0	0	2
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Prerequisites: Enrollment in EMS program
Corequisites: None
This course stresses the principles of managing a modern emergency medical service system. Topics include structure and function of municipal governments, EMS grantsmanship, finance, regulatory agencies, system management, legal issues, and other topics relevant to the EMS manager. Upon completion, students should be able to understand the principles of managing emergency medical service delivery systems.

EMS 240	Special Needs Patients	1	2	0	2
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Prerequisites: EMS 120, EMS 121 or EMS 122 and EMS 130, and EMS 131
Corequisites: None
This course includes concepts of crisis intervention and techniques of dealing with special needs patients and is required for paramedic certification. Topics include behavioral emergencies, abuse, assault, challenged patients, personal well-being, home care, and psychotherapeutic pharmacology. Upon completion, students should be able to recognize and manage frequently encountered special needs patients.

EMS 241	EMS Clinical Practicum IV	0	0	9	3
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Prerequisites: EMS 231 or EMS 232 and COE 131
Corequisites: None
This course is a continuation of the hospital and field internship required for paramedic certification. Emphasis is placed on advanced-level care. Upon completion, students should be able to provide advanced-level patient care as an entry-level paramedic.

EMS 250	Advanced Medical Emergencies	2	3	0	3
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Prerequisites: EMS 120, EMS 130, EMS 131, and either EMS 121 or EMS 122
Corequisites: None
This course provides an in-depth study of medical conditions frequently encountered in the prehospital setting and is required for paramedic certification. Topics include pulmonology, neurology, endocrinology, anaphylaxis, gastroenterology, toxicology, and environmental emergencies integrating case presentation and emphasizing pharmacotherapeutics. Upon completion, students should be able to recognize and manage frequently encountered medical conditions based upon initial patient impression.

EMS 260 Advanced Trauma Emergencies 1 3 0 2
 Prerequisites: EMS 120, EMS 130, EMS 131, and either EMS 121 or COE 111 and EMS 122
 Corequisites: None
 This course provides in-depth study of trauma including pharmacological interventions for conditions frequently encountered in the prehospital setting and is required for paramedic certification. Topics include hemorrhage control, shock, burns, and trauma to head, spine, soft tissue, thoracic, abdominal, and musculoskeletal areas with case presentations utilized for special problems situations. Upon completion, students should be able to recognize and manage trauma situations based upon patient impressions and should meet requirements of BTLS or PHTLS courses.

EMS 270 Life Span Emergencies 2 2 0 3
 Prerequisites: EMS 120, EMS 130, EMS 131
 Corequisites: None
 This course, required for paramedic certification, covers medical/ethical/legal issues and the spectrum of age-specific emergencies from conception through death. Topics include gynecological, obstetrical, neonatal, pediatric, and geriatric emergencies and pharmacological therapeutics. Upon completion, students should be able to recognize and treat age-specific emergencies and certify at the Pediatric Advanced Life Support Provider level.

EMS 285 EMS Capstone 1 3 0 2
 Prerequisites: EMS 220, EMS 250, EMS 260
 Corequisites: None
 This course provides an opportunity to demonstrate problem-solving skills as a team leader in simulated patient scenarios and is required for paramedic certification. Emphasis is placed on critical thinking, integration of didactic and psychomotor skills, and effective performance in simulated emergency situations. Upon completion, students should be able to recognize and appropriately respond to a variety of EMS-related events.

ENG 001 Writing Skills Lab - - - -
 Prerequisites: None
 Corequisites: None
 Designed to support courses across the curriculum that require writing by providing assistance to help students overcome deficiencies in organization and development, grammar and usage, mechanics, sentence structure and style, literary analysis and documentation.

ENG 070 Basic Language Skills 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the fundamentals of standard written English. Emphasis is placed on effective word choice, recognition of sentences and sentence parts, and basic usage. Upon completion, students should be able to generate a variety of sentences that clearly express ideas. Regular readings will provide the basis for frequent writing practice.

ENG 075 Reading and Language Essentials 5 0 0 5
 Prerequisites: None
 Corequisites: None
 This course uses whole language to develop proficiency in basic reading and writing. Emphasis is placed on increasing vocabulary, developing comprehension skills, and improving grammar. Upon completion, students should be able to understand and create grammatically and syntactically correct sentences.

ENG 075A Reading and Language Essentials Lab 0 2 0 1
 Prerequisites: None
 Corequisites: ENG 075
 This laboratory provides the opportunity to practice the skills introduced in ENG 075. Emphasis is placed on practical skills for increasing vocabulary, developing comprehension skills, and improving grammar. Upon completion, students should be able to apply those skills in the production of grammatically and syntactically correct sentences.

ENG 080 Writing Foundations 3 2 0 4
 Prerequisites: ENG 070 or ENG 075 or placement
 Corequisites: None
 This course introduces the writing process and stresses effective sentences. Emphasis is placed on applying the conventions of written English, reflecting standard usage and mechanics in structuring a variety of sentences. Upon completion, students should be able to write correct sentences and a unified, coherent paragraph. Regular readings will provide the basis for additional, less structured writing practice.

ENG 090 Composition Strategies 3 0 0 3
 Prerequisites: ENG 080 or ENG 085 or placement
 Corequisites: None
 This course provides practice in the writing process and stresses effective paragraphs. Emphasis is placed on learning and applying the conventions of standard written English in developing paragraphs within the essay. Upon completion, students should be able to compose a variety of paragraphs and a unified, coherent essay.

ENG 090A Composition Strategies Lab 0 2 0 1
 Prerequisites: ENG 080 or ENG 085 or placement
 Corequisites: ENG 090
 This writing lab is designed to practice the skills introduced in ENG 090. Emphasis is placed on learning and applying the conventions of standard written English in developing paragraphs within the essay. Upon completion, students should be able to compose a variety of paragraphs and a unified, coherent essay.

ENG 101 Applied Communications I 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course is designed to enhance reading and writing skills for the workplace. Emphasis is placed on technical reading, job-related vocabulary, sentence writing, punctuation, and spelling. Upon completion, students should be able to identify main ideas with supporting details and produce mechanically correct short writings appropriate to the workplace. A component of this course will include developing job-marketing skills.

ENG 102 Applied Communications II 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course is designed to enhance writing and speaking skills for the workplace. Emphasis is placed on generating short writings such as job application documents, memoranda, and reports and developing interpersonal communication skills with employees and the public. Upon completion, students should be able to prepare effective, short, and job-related written and oral communications. *This is a diploma-level course*

ENG 110 Freshman Composition 3 0 0 3
Prerequisites: ENG 090, RED 080

Corequisites: None

This course is the first course in a series of two designed to develop informative and business writing skills. Emphasis is placed on logical organization of writing, including effective introductions and conclusions, precise use of grammar, and appropriate selection and use of sources. Upon completion, students should be able to produce clear, concise, well-organized short papers.

ENG 111 Expository Writing 3 0 0 3

Prerequisites: ENG 090 and RED 090, or placement

Corequisites: None

This course is the required first course in a series of two designed to develop the ability to produce clear expository prose. Emphasis is placed on the writing process including audience analysis, topic selection, thesis support and development, editing, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course will also introduce students to the skills needed to produce a college-level research essay.

ENG 111A Expository Writing Lab 0 2 0 1

Prerequisites: ENG 090 and RED 090,
or placement

Corequisites: ENG 111

This writing laboratory is designed to apply the skills introduced in ENG 111. Emphasis is placed on the editing and revision components of the writing process. Upon completion, students should be able to apply those skills in the production of final drafts in ENG 111.

ENG 112 Argument-Based Research 3 0 0 3

Prerequisites: ENG 111

Corequisites: None

This course, the second in a series of two, introduces research techniques, documentation styles, and argumentative strategies. Emphasis is placed on analyzing data and incorporating research findings into documented argumentative essays and research projects. Upon completion, students should be able to summarize, paraphrase, interpret, and synthesize information from primary and secondary sources using standard research format and style.

ENG 113 Literature-Based Research 3 0 0 3

Prerequisites: ENG 111

Corequisites: None

This course, the second in a series of two, expands the concepts developed in ENG 111 by focusing on writing that involves literature-based research and documentation. Emphasis is placed on critical reading and thinking and the analysis and interpretation of prose, poetry, and drama: plot, characterization, theme, cultural context, etc. Upon completion, students should be able to construct mechanically-sound, documented essays and research papers that analyze and respond to literary works. This course may include a variety of critical approaches.

ENG 114 Professional Research and Reporting 3 0 0 3

Prerequisites: ENG 111

Corequisites: None

This course, the second in a series of two, is designed to teach professional communication skills. Emphasis is placed on research, listening, critical reading and thinking, analysis, interpretation, and design used in oral and written presentations. Upon completion, students should be able to work individually and collaboratively to produce well-designed business and professional written and oral presentations. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition. This course is also available through the Virtual Learning Community (VLC).*

ENG 125 Creative Writing I 3 0 0 3

Prerequisites: ENG 111

Corequisites: ENG 112, ENG 113, or ENG 114

This course is designed to provide students with the opportunity to practice the art of creative writing. Emphasis is placed on writing, fiction, poetry, and sketches. Upon completion, students should be able to craft and critique their own writing and critique the writing of others.

ENG 126 Creative Writing II 3 0 0 3

Prerequisites: ENG 125

Corequisites: None

This course is designed as a workshop approach for advancing imaginative and literary skills. Emphasis is placed on the discussion of style, techniques, and challenges for first publications. Upon completion, students should be able to submit a piece of their writing for publication. A portfolio of finished work will be required of all students.

ENG 131 Introduction to Literature 3 0 0 3

Prerequisites: ENG 111

Corequisites: ENG 112, ENG 113, or ENG 114

This course introduces the principal genres of literature. Emphasis is placed on literary terminology, devices, structure, and interpretation. Upon completion, students should be able to analyze and respond to literature. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. This course is also available through the Virtual Learning Community (VLC).*

ENG 138 English Grammar 3 0 0 3

Prerequisites: ENG 111

Corequisites: None

This course focuses on traditional, structural, and transformational grammar. Emphasis is placed on syntax, grammatical terminology, prescriptive, and descriptive grammar. Upon completion, students should be able to demonstrate an understanding of grammatical theory and application.

ENG 231 American Literature I 3 0 0 3

Prerequisites: ENG 112, ENG 113, or ENG 114

Corequisites: None

This course covers selected works in American literature from its beginnings to 1865. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.

ENG 232 American Literature II 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course covers selected works in American literature from 1865 to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.

ENG 234 Modern American Poets 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course covers the works of selected major modern American poets. Topics include each poet's theory and practice of poetry and the historical and literary traditions that influenced or were influenced by the poets. Upon completion, students should be able to read poetry with more comprehension and explicate selected poems in light of technique, theory, and poetic traditions.

ENG 241 British Literature I 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course covers selected works in British literature from its beginnings to the Romantic Period. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.

ENG 242 British Literature II 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course covers selected works in British literature from the Romantic Period to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.

ENG 253 The Bible as Literature 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course introduces the Hebrew Old Testament and the Christian New Testament as works of literary art. Emphasis is placed on the Bible's literary aspects including history, composition, structure, and cultural contexts. Upon completion, students should be able to identify and analyze selected books and passages using appropriate literary conventions.

ENG 261 World Literature I 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course introduces selected works from the Pacific, Asia, Africa, Europe, and the Americas from their literary beginnings through the seventeenth century. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to selected works.

ENG 262 World Literature II 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course introduces selected works from the Pacific, Asia, Africa, Europe, and the Americas from the eighteenth century to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to selected works.

ENG 271 Contemporary Literature 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course includes a study of contemporary literature. Emphasis is placed on literary and cultural trends of selected texts. Upon completion, students should be able to interpret, analyze, and respond to the literature.

ENG 272 Southern Literature 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course provides an analytical study of the works of several Southern authors. Emphasis is placed on the historical and cultural contexts, themes, aesthetic features of individual works, and biographical backgrounds of the authors. Upon completion, students should be able to interpret, analyze, and discuss selected works.

ENG 273 African-American Literature 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course provides a survey of the development of African-American literature from its beginnings to the present. Emphasis is placed on historical and cultural context, themes, literary traditions, and backgrounds of the authors. Upon completion, students should be able to interpret, analyze, and respond to selected texts.

ENG 274 Literature by Women 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course provides an analytical study of the works of several women authors. Emphasis is placed on the historical and cultural contexts, themes and aesthetic features of individual works, and biographical backgrounds of the authors. Upon completion, students should be able to interpret, analyze, and discuss selected works.

ENG 275 Science Fiction 3 0 0 3
 Prerequisites: ENG 112, ENG 113, or ENG 114
 Corequisites: None
 This course covers the relationships between science and literature through analysis of short stories and novels. Emphasis is placed on scientific discoveries that shaped Western culture and our changing view of the universe as reflected in science fiction literature. Upon completion, students should be able to trace major themes and ideas and illustrate relationships between science, world view, and science fiction literature.

ENV 110 Environmental Science 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the environmental problems facing society today. Topics include population, natural resources, air and water pollution, and waste disposal problems. Upon completion, students should be able to demonstrate insight into the role the individual plays in shaping the environment.

ENV 120 Earth Science 3 2 0 4
 Prerequisites: ENV 110 or BIO 140 and BIO 140A
 Corequisites: None
 This course covers the fundamental principles of earth science that provide a foundation for continued study in environmental science. Emphasis is placed on the basic principles of geology, oceanography, meteorology, astronomy, and the development of inquiry about the natural world through observation. Upon completion, students should be able to demonstrate an understanding of the component areas of earth science.

ENV 193 Selected Topics in Environmental Science Technology - - - 3
 Prerequisites: ENV 120
 Corequisites: ENV 210, ENV 214
 This course provides an opportunity to explore areas of current interest in Environmental Science Technology. Emphasis is placed on subject matter appropriate to environmental science technology. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ENV 210 Management of Waste 3 2 0 4
 Prerequisites: CHM 131, ENV 110 or BIO 140 and BIO 140A
 Corequisites: None
 This course examines contemporary environmental issues concerning the disposal of wastes. Topics include problems associated with the disposal of municipal solid waste, low-level radioactive waste, high-level radioactive waste, and hazardous and toxic waste. Upon completion, students should be able to demonstrate an understanding of the methodologies and technologies involved in the proper handling and disposal of wastes.

ENV 212 Instrumentation 3 3 0 4
 Prerequisites: ENV 110 or BIO 140 and BIO 140A
 Corequisites: CHM 132
 This course introduces analytical techniques used in quantitative analysis of chemical samples. Emphasis is placed on both classical wet techniques of chemical analysis and modern instrumental techniques. Upon completion, students should be able to use the methodologies and technologies involved in chemical analysis.

ENV 214 Water Quality 3 2 0 4
 Prerequisites: CHM 131, ENV 110 or BIO 140 and BIO 140A
 Corequisites: None
 This course examines the constituents of natural waters from a biological and geochemical perspective. Topics include common components of water, water sources, water law, health consequences, water treatment procedures, and the design of water treatment plants. Upon completion, students should be able to demonstrate an understanding of the biological, chemical, and geological factors affecting water quality.

ENV 218 Environmental Health 3 0 0 3
 Prerequisites: ENV 110 or BIO 140 and BIO 140A
 Corequisites: None
 This course covers the influence of environmental conditions on human health. Emphasis is placed on environmental contaminants and the major exposure routes of the human body. Upon completion, students should be able to examine segments of the environment, including air, water, and food, and determine how the conditions of these influence human health.

ENV 220 Applied Ecology 3 2 0 4
 Prerequisites: ENV 110 or BIO 140 and BIO 140A and BIO 111
 Corequisites: None
 This course covers the relationships between organisms and their environment and the interactions among organisms. Topics include environmental factors affecting aquatic and terrestrial systems, regulation and dynamics of populations, interactions among species, and the ecological viewpoint in modern land management. Upon completion, students should be able to demonstrate an understanding of the relationship between man and his environment and the ecological impact of human activities.

ENV 222 Air Quality 3 2 0 4
 Prerequisites: CHM 131, ENV 110 or BIO 140 and BIO 140A
 Corequisites: None
 This course introduces the study of air quality and air pollution. Emphasis is placed on air pollution basics, current atmospheric conditions, effects of air pollution, air quality analysis and measurement, and regulatory control of air pollution. Upon completion, students should be able to demonstrate an understanding of the environmental hazards associated with air pollution from a human health and welfare perspective.

ENV 226 Environmental Law 3 0 0 3
 Prerequisites: ENV 110 or BIO 140 and BIO 140A
 Corequisites: ENV 218
 This course covers federal laws and acts concerning environmental quality standards and the use of resources, legal procedures for enforcing laws, and problems concerning enforcement. Emphasis is placed on environmental law basics, water quality laws, air quality laws, waste disposal laws, and biological resource protection laws. Upon completion, students should be able to demonstrate an understanding of federal/state environmental laws and their importance to the protection of environmental quality.

ENV 228 Environmental Issues 1 0 0 1
 Prerequisites: None
 Corequisites: None
 This course provides a forum for the discussion of current environmental issues. Emphasis is placed on environmental news, regulations, accidents, and areas of controversy. Upon completion, students should be able to demonstrate an understanding of the impact of local, state, national, and global events on environmental quality.

F

FRE 111 Elementary French I 3 0 0 3
 Prerequisites: ENG 090 or placement
 Corequisites: FRE 181
 This course introduces the fundamental elements of the French language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French and demonstrate cultural awareness.

FRE 112 Elementary French II 3 0 0 3
 Prerequisites: FRE 111
 Corequisites: FRE 182
 This course is a continuation of FRE 111 focusing on the fundamental elements of the French language within a cultural context. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written French and demonstrate further cultural awareness.

FRE 141 Culture and Civilization 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course, taught in English, provides an opportunity to explore issues related to the Francophone world. Topics include historical and current events, geography, and customs. Upon completion, students should be able to identify and discuss selected topics and cultural differences related to the Francophone world.

FRE 151 Francophone Literature 3 0 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course, in English, includes selected readings by Francophone writers. Topics include fictional and non-fictional works by representative authors from a variety of genres and literary periods. Upon completion, students should be able to analyze and discuss selected texts within relevant cultural and historical contexts.

FRE 161 Cultural Immersion 2 3 0 3
 Prerequisites: FRE 111
 Corequisites: None
 This course explores Francophone culture through intensive study on campus and field experience in a host country or area. Topics include an overview of linguistic, historical, geographical, sociopolitical, economic, and/or artistic concerns of the area visited. Upon completion, students should be able to exhibit first-hand knowledge of issues pertinent to the host area and demonstrate an understanding of cultural differences.

FRE 181 French Lab 1 0 2 0 1
 Prerequisites: ENG 090 or placement
 Corequisites: FRE 111
 This course provides an opportunity to enhance acquisition of the fundamental elements of the French language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French and demonstrate cultural awareness.

FRE 182 French Lab 2 0 2 0 1
 Prerequisites: FRE 181
 Corequisites: FRE 112
 This course provides an opportunity to enhance acquisition of the fundamental elements of the French language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written French and demonstrate cultural awareness.

FRE 211 Intermediate French I 3 0 0 3
 Prerequisites: FRE 112
 Corequisites: FRE 281
 This course provides a review and expansion of the essential skills of the French language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future.

FRE 212 Intermediate French II 3 0 0 3
 Prerequisites: FRE 211
 Corequisites: FRE 282
 This course is a continuation of FRE 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication.

FRE 221 French Conversation 3 0 0 3
 Prerequisites: FRE 212
 Corequisites: None
 This course provides an opportunity for intensive communication in spoken French. Emphasis is placed on vocabulary acquisition and interactive communication through the discussion of media materials and authentic texts. Upon completion, students should be able to discuss selected topics, express ideas and opinions clearly, and engage in formal and informal conversations.

FRE 281 French Lab 3 0 2 0 1
 Prerequisites: FRE 182
 Corequisites: FRE 211
 This course provides an opportunity to enhance the review and expansion of the essential skills of the French language. Emphasis is placed on the study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future.

FRE 282 French Lab 4 0 2 0 1
 Prerequisites: FRE 281
 Corequisites: FRE 212
 This course provides an opportunity to enhance the review and expansion of the essential skills of the French language. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication.

G

GEL 113 Historical Geology 3 2 0 4
 Prerequisites: GEL 111 or GEL 120
 Corequisites: None
 This course covers the geological history of the earth and its life forms. Emphasis is placed on the study of rock strata, fossil groups, and geological time. Upon completion, students should be able to identify major fossil groups and associated rock strata and approximate ages of geological formations.

GEL 120 Physical Geology 3 2 0 4
 Prerequisites: ENG 090, MAT 060, RED 090, or placement
 Corequisites: None
 This course provides a study of the structure and composition of the earth's crust. Emphasis is placed on weathering, erosional and depositional processes, mountain building forces, rocks and minerals, and structural changes. Upon completion, students should be able to explain the structure, composition, and formation of the earth's crust.

GEL 230 Environmental Geology 3 2 0 4
 Prerequisites: GEL 111 or GEL 120 or PHS 130
 Corequisites: None
 This course provides insights into geologic forces that cause environmental changes influencing man's activities. Emphasis is placed on natural hazards and disasters caused by geologic forces. Upon completion, students should be able to relate major hazards and disasters to the geologic forces responsible for their occurrence.

GEO 111 World Regional Geography 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course introduces the regional concept which emphasizes the spatial association of people and their environment. Emphasis is placed on the physical, cultural, and economic systems that interact to produce the distinct regions of the earth. Upon completion, students should be able to describe variations in physical and cultural features of a region and demonstrate an understanding of their functional relationships. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC).*

GIS 111 Introduction to GIS 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the hardware and software components of a Geographic Information System and reviews GIS applications. Topics include data structures and basic functions, methods of data capture and sources of data, and the nature and characteristics of spatial data and objects. Upon completion, students should be able to identify GIS hardware components, typical operations, products/applications, and differences between database models and between raster and vector systems.

GIS 112 Introduction to GPS 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an overview of Global Positioning Systems (GPS). Topics include the theory, implementation, and operations of GPS, as well as alternate data source remote sensing. Upon completion, students should be able to demonstrate an understanding of the fundamentals of GPS.

GRA 255 Image Manipulation I 1 3 0 2
 Prerequisites: GRA 151 or GRD 151
 Corequisites: None
 This course covers applications associated with electronic image manipulation, including color correction, color separation, special effects, and image conversion. Topics include image-capturing hardware, image-processing software, and output options. Upon completion, students should be able to utilize hardware and software to acquire, manipulate, and output images to satisfy design and production.

GRD 110 Typography I 2 2 0 3
 Prerequisites: RED 090
 Corequisites: None
 This course introduces the history and mechanics of type and its application to layout and design. Topics include typographic fundamentals, anatomy, measurements, composition, identification, and terminology. Upon completion, students should be able to demonstrate proficiency in design application, analysis, specification, and creation of typographic elements.

GRD 111 Typography II 2 2 0 3
 Prerequisites: RED 090, GRD 110
 Corequisites: None
 This course is a continuation of GRD 110. Emphasis is placed on solving challenging typographic problems. Upon completion, students should be able to understand and demonstrate advanced typographic applications.

GRD 117 Design Career Exploration 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course covers opportunities in the graphic design field and employment requirements. Topics include evaluation of career choices, operations, structure of advertising and graphic design businesses, and related business issues. Upon completion, students should be able to demonstrate an understanding of the graphic design field and consider an appropriate personal direction of career specialization.

GRD 121 Drawing Fundamentals I 1 3 2 0
 Prerequisites: None
 Corequisites: None
 This course increases observation skills using basic drawing techniques and media in graphic design. Emphasis is placed on developing the use of graphic design principles, media applications, spatial considerations, drawing styles, and approaches. Upon completion, students should be able to show competence and proficiency in finished works. Students should possess a basic drawing ability to successfully complete drawings at the college level.

GRD 131 Illustration I 1 3 0 2
 Prerequisites: RED 090, and ART 131, DES 125, or GRD 121
 Corequisites: None
 This course introduces the application of rendering techniques to create illustrations. Emphasis is placed on controlling various media, methods, surfaces, design problems, and the appropriate media selection process. Upon completion, students should be able to produce quality illustrations from conception through finished artwork.

GRD 141 Graphic Design I 2 4 0 4
 Prerequisites: RED 090
 Corequisites: None
 This course introduces the conceptualization process used in visual problem solving. Emphasis is placed on learning the principles of design and on the manipulation and organization of elements. Upon completion, students should be able to apply design principles and visual elements to projects.

GRD 142 Graphic Design II 2 4 0 4
 Prerequisites: ART 121, DES 135, or GRD 141
 Corequisites: None
 This course covers the application of visual elements and design principles in advertising and graphic design. Topics include creation of various designs, such as logos, advertisements, posters, outdoor advertising, and publication design. Upon completion, students should be able to effectively apply design principles and visual elements to projects.

GRD 151 Computer Design Basics 1 4 0 3
 Prerequisites: RED 090
 Corequisites: None
 This course covers designing and drawing with various types of software applications for advertising and graphic design. Emphasis is placed on creative and imaginative use of space, shapes, value, texture, color, and typography to provide effective solutions to advertising and graphic design problems. Upon completion, students should be able to use the computer as a creative tool.

GRD 152 Computer Design Techniques I 1 4 0 3
 Prerequisites: GRD 151, RED 090
 Corequisites: None
 This course covers complex design problems utilizing various design and drawing software applications. Topics include the expressive use of typography, image, and organization to communicate a message. Upon completion, students should be able to use appropriate computer software to professionally present their work.

GRD 153 Computer Design Techniques II 1 4 0 3
 Prerequisites: GRD 151, GRD 152, and RED 090
 Corequisites: None
 This course covers advanced theories and practices in the field of computer design. Emphasis is placed on advanced use of color palettes, layers, and paths. Upon completion, students should be able to creatively produce designs and articulate their rationale. This course is a composite using GRD 110, GRD 151, and GRD 152 problems.

GRD 160 Photo Fundamentals I 1 4 0 3
 Prerequisites: RED 090
 Corequisites: None
 This course introduces basic camera operations, roll film processing, and photographic print production. Topics include contrast, depth-of-field, subject composition, enlarger operation, and density control. Upon completion, students should be able to produce photographic prints with acceptable density values and quality.

GRD 161 Photo Fundamentals II 1 4 0 3
 Prerequisites: GRD 160
 Corequisites: None
 This course is a continuation of GRD 160. Topics include conversions, toning, color, specialized equipment, lighting, processing, and other methods and materials. Upon completion, students should be able to demonstrate proficiency in producing photographic prints.

GRD 170 Exhibit Design 1 4 0 3
 Prerequisites: GRD 141
 Corequisites: None
 This course introduces basic studio problems in three-dimensional visual design. Emphasis is placed on the structural elements and organizational principles as applied to mass and space. Upon completion, students should be able to apply three-dimensional design concepts in both exhibit designs and commercial displays.

GRD 175 3-D Animation Design 1 4 0 3
 Prerequisites: RED 090, and GRD 151 or GRA 151
 Corequisites: None
 This course explores three-dimensional animation design and production. Emphasis is placed on developing essential skills and techniques using three-dimensional animation software from conceptualization to completion including design, illustration, color, spatial depth, and movement. Upon completion, students should be able to produce animation sequences for computer-related presentations.

GRD 193 Selected Topics in Digital Production - - - 3
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Advertising and Graphic Design. Emphasis is placed on the development of critical listening skills and the presentation of selected topic issues. Upon completion, students should be able to critically analyze issues and establish informed opinions. This is an advanced design course focusing on the principles of digital production and design projects.

GRD 198 Seminar in Advertising and Graphic Design 2 2 0 3
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Advertising and Graphic Design. Emphasis is placed on subject matter appropriate to advertising and graphic designing. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

GRD 230 Technical Illustration 1 3 0 2
 Prerequisites: RED 070, and ART 131, DES 125, or GRD 121
 Corequisites: None
 This course introduces technical and industrial illustration techniques. Topics include orthographic, isometric, linear perspective, and exploded views. Upon completion, students should be able to demonstrate competence in various technical rendering techniques.

GRD 232 Fashion Illustration 1 3 0 2
 Prerequisites: GRD 131, RED 090
 Corequisites: None
 This course is a study of the current fashion figure. Emphasis is placed on form and movement combined with colors, patterns, fabrics, textures, and styles to create exciting illustrations. Upon completion, students should be able to illustrate fashion figures and accessories using various media.

GRD 233 Product Illustration 1 3 0 2
 Prerequisites: GRD 131 or GRD 230 and GRD 152 or GRA 152
 Corequisites: None
 This course covers the rendering and illustration of products for commercial purposes. Topics include viewpoint, styles, media, and subjects such as household, industrial, hardware, and sporting goods. Upon completion, students should be able to illustrate products using traditional line, continuous-tone, and digital media.

GRD 241 Graphic Design III 2 4 0 4
 Prerequisites: RED 090, and DES 136 or GRD 142
 Corequisites: None
 This course is an advanced exploration of various techniques and media for advertising and graphic design. Emphasis is placed on advanced concepts and solutions to complex and challenging graphic design problems. Upon completion, students should be able to demonstrate competence and professionalism in visual problem solving.

GRD 263 Illustrative Imaging 1 4 0 3
 Prerequisites: RED 070, and GRD 151 or GRA 151
 Corequisites: None
 This course covers the creative manipulation of images utilizing digital techniques of masking, layering, airbrushing, and painting. Topics include the aesthetic analysis of visual imagery as well as the legalities of manipulating images. Upon completion, students should be able to utilize software applications to creatively manipulate and illustratively build digital images that accomplish design objectives.

GRD 265 Digital Print Production 1 4 0 3
 Prerequisites: RED 070, and GRD 152 or GRA 151
 Corequisites: None
 This course covers preparation of digital files for output and reproduction. Emphasis is placed on output options, separations, color proofing, and cost and design considerations. Upon completion, students should be able to prepare files and select appropriate output methods for design solutions.

GRD 280 Portfolio Design 2 4 0 4
 Prerequisites: GRD 142, RED 090; and GRD 152 or GRA 152
 Corequisites: None
 This course covers the organization and presentation of a design/advertising or graphic art portfolio and appropriate related materials. Emphasis is placed on development and evaluation of the portfolio, design and production of a résumé and self-promotional materials, and interview techniques. Upon completion, students should be able to prepare and professionally present an effective portfolio and related self-promotional materials.

GRD 281 Design of Advertising 2 0 0 2
 Prerequisites: RED 090
 Corequisites: None
 This course explores the origins, roles, scope, forms, and development of advertising. Emphasis is placed on advertising development from idea through production and the interrelationship of marketing to types of advertising, media, and organizational structure. Upon completion, students should be able to demonstrate an understanding of the complexities and relationships involved in advertising design.

GRD 282 Advertising Copywriting 1 2 0 2
 Prerequisites: RED 090, ENG 111
 Corequisites: None
 This course covers copywriting for print, electronic, and broadcast advertising and promotion. Topics include advertising strategies, proposals, headlines, slogans, and text copy for various types of advertising. Upon completion, students should be able to write and articulate advertising proposals and understand the ethical and regulatory environment for advertising.

GRD 285 Client/Media Relations 1 2 0 2
 Prerequisites: GRD 142 RED 090; and GRA 121 or GRA 152 or GRD 152
 Corequisites: None
 This course introduces media pricing, scheduling, and business ethics. Emphasis is placed on communication with clients and determination of clients' advertising needs. Upon completion, students should be able to use professional communication skills to effectively orchestrate client/media relationships.

GRD 293 Selected Topics in Advertising and Graphic Design 2 2 0 3
 Prerequisites: Varies, based on topics
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Advertising and Graphic Design. Emphasis is placed on subject matter appropriate to advertising and graphic designing. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

GRD 298 Selected Topics in Advertising and Graphic Design 2 2 0 3
 Prerequisites: Varies, based on topics
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Advertising and Graphic Design. Emphasis is placed on subject matter appropriate to advertising and graphic designing. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

GRO 120 Gerontology 3 0 0 3
 Prerequisites: PSY 150
 Corequisites: None
 This course covers the psychological, social, and physical aspects of aging. Emphasis is placed on the factors that promote mental and physical well-being. Upon completion, students should be able to recognize the aging process and its psychological, social, and physical aspects.

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HEA 110 Personal Health/Wellness 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an introduction to basic personal health and wellness. Emphasis is placed on current health issues such as nutrition, mental health, and fitness. Upon completion, students should be able to demonstrate an understanding of the factors necessary to the maintenance of health and wellness. This course will include practical, real-life applications to the material presented in the text that encourage students to apply the material to their own lives.

HEA 112 First Aid and CPR 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the basics of emergency first aid treatment. Topics include rescue breathing, CPR, first aid for choking and bleeding, and other first aid procedures. Upon completion, students should be able to demonstrate skills in providing emergency care for the sick and injured until medical help can be obtained.

HET 110 Diesel Engines	3	9	0	6
Prerequisites: None				
Corequisites: None				
This course introduces theory, design, terminology, and operating adjustments for diesel engines. Emphasis is placed on safety, theory of operation, inspection, measuring, and rebuilding diesel engines according to factory specifications. Upon completion, students should be able to measure, diagnose problems, and repair diesel engines.				
HET 110a Diesel Engines-Part 1	2	6	0	4
Prerequisites: None				
Corequisites: None				
This course is the first half of HET 110 (see the description for HET 110 above).				
HET 110b Diesel Engines-Part 2	1	3	0	2
Prerequisites: HET 110a				
Corequisites: None				
This course is the second half of HET 110 (see the description for HET 110 above).				
HET 112 Diesel Electrical Systems	3	6	0	5
Prerequisites: None				
Corequisites: None				
This course introduces electrical theory and applications as they relate to diesel powered equipment. Topics include lighting, accessories, safety, starting, charging, instrumentation, and gauges. Upon completion, students should be able to follow schematics to identify, repair, and test electrical circuits and components.				
HET 114 Power Trains	3	6	0	5
Prerequisites: None				
Corequisites: None				
This course introduces power transmission devices. Topics include function and operation of gears, chains, clutches, planetary gears, drive lines, differentials, and transmissions. Upon completion, students should be able to identify, research specifications, repair, and adjust power train components.				
HET 115 Electronic Engines	2	3	0	3
Prerequisites: None				
Corequisites: None				
This course introduces the principles of electronically controlled diesel engines. Emphasis is placed on testing and adjusting diesel engines in accordance with manufacturers' specifications. Upon completion, students should be able to diagnose, test, and calibrate electronically controlled diesel engines.				
HET 116 Air Conditioning/Diesel Equipment	1	2	0	2
Prerequisites: None				
Corequisites: None				
This course provides a study of the design, theory, and operation of heating and air conditioning systems in newer models of medium and heavy duty vehicles. Topics include component function, refrigerant recovery, and environmental regulations. Upon completion, students should be able to use proper techniques and equipment to diagnose and repair heating/air-conditioning systems according to industry standards.				

HET 120 Intro to Mobile Equipment	1	2	0	2
Prerequisites: None				
Corequisites: None				
This course introduces the functions and systems of modern medium and heavy duty vehicles. Topics include use of technical manuals, tools and equipment, record keeping, material safety data sheets, and work habit safety. Upon completion, students should be able to use technical manuals, tools, equipment, and material safety data sheets.				
HET 128 Medium/Heavy Duty Tune Up	1	2	0	2
Prerequisites: None				
Corequisites: HET 110				
This course introduces tune-up and troubleshooting according to manufacturers' specifications. Topics include troubleshooting engine systems, tune-up procedures, and use and care of special test tools and equipment. Upon completion, students should be able to troubleshoot, diagnose, and repair engines and components using appropriate diagnostic equipment.				
HET 134 Mechanical Fuel Injection	2	2	0	3
Prerequisites: None				
Corequisites: None				
This course introduces the principles of mechanical fuel injection. Emphasis is placed on test equipment, component functions, and theory. Upon completion, students should be able to diagnose, service, and repair fuel systems and governors.				
HET 192 Selected Topics in Heavy Equipment and Transport Technology	-	-	-	2
Prerequisites: Varies, based on topic.				
Corequisites: None				
This course provides an opportunity to explore areas of current interest in heavy equipment and transport technology. Emphasis is placed on subject matter appropriate to heavy equipment. Upon completion, students should be able to demonstrate an understanding of the specific area of study.				
HET 231 Med/Heavy Duty Brake Sys	1	3	0	2
Prerequisites: None				
Corequisites: None				
This course covers the theory and repair of braking systems used in medium and heavy duty vehicles. Topics include air, hydraulic, and ABS system diagnosis and repair. Upon completion, students should be able to troubleshoot, adjust, and repair braking systems on medium and heavy duty vehicles.				
HET 232 Med/Hvy Duty Brake Sys Lab	0	3	0	1
Prerequisites: None				
Corequisites: HET 231				
This course provides a laboratory setting to enhance the skills for troubleshooting, adjusting, and repairing brake systems on medium and heavy duty vehicles. Emphasis is placed on practical experiences that enhance the topics presented in HET 231. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in HET 231.				

HET 233 Suspension and Steering 2 4 0 4
 Prerequisites: None
 Corequisites: None
 This course introduces the theory and principles of medium and heavy duty steering and suspension systems. Topics include wheel and tire problems, frame members, fifth wheel, bearings, and coupling systems. Upon completion, students should be able to troubleshoot, adjust, and repair suspension and steering components on medium and heavy duty vehicles.

HIS 111 World Civilizations I 3 0 0 3
 Prerequisites: ENG 090, and RED 090, or placement
 Corequisites: None
 This course introduces world history from the dawn of civilization to the early modern era. Topics include Eurasian, African, American, and Greco-Roman civilizations and Christian, Islamic and Byzantine cultures. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in pre-modern world civilizations. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.*

HIS 112 World Civilizations II 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course introduces world history from the early modern era to the present. Topics include the cultures of Africa, Europe, India, China, Japan, and the Americas. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in modern world civilizations. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.*

HIS 117 History of Religions 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course surveys the historical development of the world's major religions. Topics include systems of belief and religious practice, polytheism, monotheism, and current religious movements. Upon completion, students should be able to analyze the world's major religious traditions. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 121 Western Civilization I 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course introduces western civilization from pre-history to the early modern era. Topics include ancient Greece, Rome, and Christian institutions of the Middle Ages and the emergence of national monarchies in western Europe. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early western civilization. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC).*

HIS 122 Western Civilization II 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course introduces western civilization from the early modern era to the present. Topics include the religious wars, the Industrial Revolution, World Wars I and II, and the Cold War. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in modern western civilization. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC).*

HIS 131 American History I 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course is a survey of American history from pre-history through the Civil War era. Topics include the migrations to the Americas, the colonial and revolutionary periods, the development of the Republic, and the Civil War. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early American history.

HIS 132 American History II 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course is a survey of American history from the Civil War era to the present. Topics include industrialization, immigration, the Great Depression, the major American wars, the Cold War, and social conflict. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in American history since the Civil War.

HIS 161 Science and Technology 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course examines the history of science and technology from pre-history to the present. Topics include the origins, impact, and consequences of scientific and technological developments. Upon completion, students should be able to analyze significant developments in the history of science and technology. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 162 Women and History 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course surveys the experience of women in historical perspective. Topics include the experiences and contributions of women in culture, politics, economics, science, and religion. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural contributions of women in history. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 167 The Vietnam War 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course covers the American political and military involvement in Vietnam from 1944 to 1975. Topics include the French colonial policy, Vietnamese nationalism, the war with France, American involvement, and resolution of the conflict. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments that influenced the Vietnam War. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 216 Twentieth-Century Europe 3 0 0 3
 Prerequisites: HIS 122
 Corequisites: None
 This course provides an in-depth survey of twentieth-century Europe. Topics include World Wars I and II, and political, social, and cultural movements of the twentieth century. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in twentieth-century Europe. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 221 African-American History 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course covers African-American history from the Colonial period to the present. Topics include African origins, the slave trade, the Civil War, Reconstruction, the Jim Crow era, the civil rights movement, and contributions of African Americans. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the history of African Americans. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 222 African-American Hist I 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers African American history through the Civil War period. Topics include African origins, the nature of slavery, African-American participation in the American Revolution, abolitionism, and the emergence of a distinct African-American culture. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early African-American history. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. This course is also available through the Virtual Learning Community (VLC).*

HIS 223 African-American Hist II 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers African American history from the Civil War to the present. Topics include Reconstruction, the Jim Crow era, urbanization, the Harlem Renaissance, the Civil Rights movement, and the philosophies of major African-American leaders. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in African-American history since the Civil War. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 226 The Civil War 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course examines the social, political, economic, and ideological forces that led to the Civil War and Reconstruction. Topics include regional conflicts and sectionalism, dissolution of the Union, military campaigns, and the War's socio-economic impact, aftermath, and consequences. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the United States during the era of the Civil War. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 231 Recent American History 3 0 0 3
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course is a study of American society from the post-Depression era to the present. Topics include World War II, the Cold War, social unrest, the Vietnam War, the Great Society, and current political trends. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in recent America. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 236 North Carolina History 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course is a study of geographical, political, economic, and social conditions existing in North Carolina from America's discovery to the present. Topics include native and immigrant backgrounds; colonial, antebellum, and Reconstruction periods; party politics; race relations; and the transition from an agrarian to an industrial economy. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in North Carolina. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 242 Russian History from 1917 3 0 0 3
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course covers the development of Russia from 1917 to the present. Topics include the Russian Revolution, Stalinism, Marxist foreign policy, the world wars, the Cold War, and the present. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in Russia since 1917. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 251 English History I 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course traces the political, social, and economic development of England to the Elizabethan period. Topics include the early development of England, the Norman conquest, medieval society, and Elizabethan England. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early English history. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 252 English History II 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course traces the political, social, and economic development of England from the Elizabethan period to the present. Topics include imperialism, industrial development, civil wars, and world wars. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in English history from Elizabethan England to the present. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HIS 271	The French Revolution Era	3	0	0	3
Prerequisites: ENG 090 and RED 090					
Corequisites: None					
This course traces the causes and effects of the French Revolution. Topics include the Enlightenment; Jacobins; Reign of Terror; Napoleon's republic, empire, and wars; and the French Revolution's impact upon world history. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments during the French revolutionary era. <i>This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.</i>					
HOR 268	Advanced Propagation	3	3	0	4
Prerequisites: None					
Corequisites: None					
This course covers applied production techniques for asexual and sexual plant propagation. Emphasis is placed on the major accepted methods of asexual propagation and sexual propagation of woody ornamental plants, with evaluation of all initiated propagation. Upon completion, students should be able to successfully propagate a variety of plant materials utilizing methods covered in the course.					
HPC 110	Introduction To HPC	2	2	0	3
Prerequisites: RED 090, MAT 070					
Corequisites: None					
This course introduces students to the terminology, hardware performance issues, programming models and software tools available for High Performance Computing (HPC). Topics include a survey of HPC concepts and terminology, HPC operating systems, memory models and architecture, PC clusters, highly integrated supercomputers and high-speed communications. Upon completion, students should be able to build a PC cluster.					
HPC 130	Introduction to HPC Communication	2	2	0	3
Prerequisites: None					
Corequisites: None					
This course introduces students to the communications aspect of remedy accessing massively parallel machines and PC clusters. Topics include single and multi-stage interconnection networks, optimization techniques, load balancing, bandwidths, data communications and buffer size optimization. Upon completion, students should be able to discuss and evaluate high-speed communication techniques and strategies in HPC Systems.					
HPC 140	Introduction to HPC Architecture	2	2	0	3
Prerequisites: RED 090, MAT 070					
Corequisites: None					
This course introduces students to hardware architecture for the High Performance Computing environment (HPC). Topics include distributed and shared memory systems, hardware design issues, vector parallel machines and communication issues of remote massively parallel machines and clusters. Upon completion, students should be able to discuss and evaluate architectural design issues in a HPC system.					

HPC 150	HPC Networking Technology	2	2	0	3
Prerequisites: HPC 110 or NET 110					
Corequisites: None					
This course introduces students to the networking topologies in a HPC environment. Topics include multiprocessor networks, network interface, testing methods and prototype development for high-speed network technologies, interoperability among high-speed network products and virtual networks. Upon completion, students should be able to discuss network issues for a HPC environment.					
HPC 152	HPC Development Tools	2	2	0	3
Prerequisites: HPC 110					
Corequisites: None					
This course introduces students to performance analysis tools to measure, predict, locate, and analyze bottleneck situations in parallel and cluster application. Topics include system software, parallel software life-cycle issues and a review of parallel developmental options in a HPC environment. Upon completion, students should be able discuss various HPC development tools and their appropriate usage in the HPC environment.					
HPC 162	HPC Security	2	2	0	3
Prerequisites: HPC 110					
Corequisites: None					
This course provides an overview of distributed computer security issues as related to HPC services. Topics include cryptographic technologies, protocols used to construct secure and private systems, internet service security mechanisms, firewalls, auditing, and related topics. Upon completion, students should be able to implement security procedures for a HPC system.					
HPC 170	Introduction to HPC Data Mining	2	2	0	3
Prerequisites: HPC 110					
Corequisites: None					
This course provides an introduction to data intensive computing on HPC machines. Topics include distributed mass storage, efficient retrieval techniques, data management tools, appropriate data structures and case studies. Upon completion, students should be able to define and discuss performance evaluation of a database in a HPC environment.					
HPC 172	HPC Applications	2	2	0	3
Prerequisites: HPC 110					
Corequisites: None					
This course introduces students to currently available HPC applications highlighting software approaches and hardware platforms. Topics include a review of successfully deployed HPC systems in industry and research environments and decision-making techniques when selecting HPC. Upon completion, students should be able to discuss, in oral as well as written form, current HPC applications highlighting strengths and weaknesses.					
HPC 180	Introduction to Cluster Computing	2	2	0	3
Prerequisites: MAT 070, RED 090					
Corequisites: None					
This course provides students with the current and emerging trends in cluster computing. Topics include current and emerging technologies in system architecture, networking, software environments, configuration, management tools, application libraries and utilities in a cluster environment. Upon completion, students should be able to discuss and illustrate fundamental cluster technology approaches using examples from engineering, scientific and/or data intensive applications.					

HPC 193 Selected Topics in HPC 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in High Performance Computing. Emphasis is placed on the subject matter appropriate to High Performance Computing. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

HPC 198 Seminar in HPC 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in High Performance Computing. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

HPC 230 Advanced HPC Communication 2 2 0 3
 Prerequisites: HPC 130
 Corequisites: None
 This course introduces students to advanced communication and networking topics in a HPC environment. Topics include switch queuing strategy, performance modeling, review of current high-speed communication networks and available tools and libraries for improving high-speed communications. Upon completion, students should be able to design and defend a reliable high-speed communication model for a HPC environment.

HPC 240 Advanced HPC Architecture 2 2 0 3
 Prerequisites: HPC 140
 Corequisites: None
 This course introduces students to advanced hardware architecture for a (HPC) system. Topics include topology of parallel computer architecture, arithmetic pipeline design, array machines, distributed architecture, multi-processor computers, SIMD, MIMD machines and current recent parallel machines. Upon completion, students should be able to design and discuss a user specified HPC architecture system.

HPC 245 Grid Technologies 2 2 0 3
 Prerequisites: HPC 110
 Corequisites: None
 This course introduces students to Grid technologies and distributed computing architecture. Topics include distributed security architecture, data formats, distributed file systems, access control of shared resources and multi-institutional collaborative environments. Upon completion, students should be able to discuss, in oral and written form, issues related to creating a scalable, distributed and secure HPC Grid environment.

HPC 262 Advanced HPC Security 2 2 0 3
 Prerequisites: HPC 162
 Corequisites: None
 This course introduces students to advanced security topics and various security applications. Topics include authentication for distributed systems, authorization models, developing secure distributed operating systems and databases, distributed intrusion detection, advanced cryptographic algorithms. Upon completion, students should be able to design a secure distributed system in a HPC environment.

HPC 264 HPC Security Management 3 0 0 3
 Prerequisites: HPC 162
 Corequisites: None
 This course is designed to provide students with a review of access and security management practices in a HPC environment. Topics include HPC disaster recovery, business continuity, redundancy and reliability policies, HPC hardware, software and network security models and physical security. Upon completion, students should be able to prepare a HPC disaster recovery continuity plan, and review security practices in every area of the HPC environment.

HPC 270 Advanced HPC Data Mining 2 2 0 3
 Prerequisites: HPC 170
 Corequisites: None
 This course introduces students to advance data mining and database design techniques in a HPC environment. Topics include data retrieval algorithms, text mining techniques, document clustering, query clusters, mathematical models, data fusion and software design for information retrieval. Upon completion, students should be able to design and implement a database using data mining techniques in a HPC environment.

HPC 272 Emerging HPC Technologies 3 0 0 3
 Prerequisites: HPC 110
 Corequisites: None
 This course introduces students to emerging technologies in the field of High Performance Computing (HPC). Emphasis is placed on the new technologies in the HPC field and a review of HPC and cluster systems already implemented. Upon completion, students should be able to discuss, in written and oral form emerging technologies in the HPC field.

HPC 280 Advanced Cluster Computing 2 2 0 3
 Prerequisites: HPC 180
 Corequisites: None
 This course introduces students to advanced design techniques and related issues in cluster computing. Topics include a review of successfully deployed cluster systems used in commerce, industry and research environments. Upon completion, students should be able to summarize findings and draw conclusions about current cluster technology, discuss emerging technology trends and clusters of the future.

HPC 285 Systems Analysis and Design 3 0 0 3
 Prerequisites: HPC 110
 Corequisites: None
 This course provides an opportunity for students to complete a significant HPC systems project with minimal instructor support. Emphasis is placed on project definition, documentation, testing, and presentation. Upon completion, students should be able to complete a HPC project.

HPC 293 Selected Topics in Bioinformatics Capstone 2 2 0 3
 Prerequisites: HPC 272 and NET 145
 Corequisites: HPC 170 and CSC 185
 The capstone project is a culminating experience to the Bioinformatics Computing certificate program. It represents the ability to formulate a project and implement it from start to finish using a combination of conceptual, technical and applied knowledge. The project will demonstrate an understanding of the design, implementation and use of web accessible biological databases.

HPC 298 Seminar in HPC 3 0 0 3
 Prerequisites: MAT 070, RED 090
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in High Performance Computing. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

HRM 110 Introduction to Hospitality 2 0 0 2
 Prerequisites: ENG 090, MAT 060
 Corequisites: None
 This course covers the growth and progress of the hospitality industry. Topics include financing, hotels, restaurants, and clubs. Upon completion, students should be able to demonstrate an understanding of the background, context, and career opportunities that exist in the hospitality industry.

HRM 115 Housekeeping 3 0 0 3
 Prerequisites: ENG 090, MAT 070, RED 090
 Corequisites: None
 This course covers the scope, responsibilities, communications, terminology, materials, and concerns specific to hotel housekeeping. Topics include management and supervision of housekeeping staff in the proper cleaning and sanitation of rooms and public areas, budgeting, purchasing, security, and inventory control. Upon completion, students should be able to understand and apply the principles of organization and management of a housekeeping department.

HRM 120 Front Office Procedures 3 0 0 3
 Prerequisites: ENG 090, MAT 070, RED 090
 Corequisites: None
 This course provides a systematic approach to hotel front office procedures. Topics include reservations, registration, guest satisfaction, occupancy and rate management, security, interdepartmental communications, and related guest services. Upon completion, students should be able to demonstrate a basic understanding of current front office operating systems, including efficient and courteous guest services.

HRM 140 Hospitality Tourism Law 3 0 0 3
 Prerequisites: HRM 110
 Corequisites: None
 This course covers the rights and responsibilities that the law grants to or imposes upon the hospitality industry. Topics include federal and state regulations, historical and current practices, safety and security, risk management, loss prevention, torts, and contracts. Upon completion, students should be able to demonstrate an understanding of the legal system to prevent or minimize organizational liability.

HRM 145 Hospitality Supervision 3 0 0 3
 Prerequisites: ENG 090, MAT 070, RED 090
 Corequisites: None
 This course covers principles of supervision as they apply to the hospitality industry. Topics include recruitment, selection, orientation, training, evaluation, and leadership skills. Upon completion, students should be able to understand and apply basic supervisory skills unique to the hospitality and service industry.

HRM 193 Selected Topics in Hotel and Restaurant Management - - - 3
 Prerequisites: CUL 140
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Hotel and Restaurant Management. Emphasis is placed on subject matter appropriate to hotel and restaurant management. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

HRM 210 Meetings and Conventions 3 0 0 3
 Prerequisites: ENG 090, MAT 070, RED 090
 Corequisites: None
 This course introduces organization, arrangement, and operation of conventions, trade shows, professional meetings, and food functions. Emphasis is placed on the methods of marketing, selling, and servicing conventions and trade shows and the division of administrative responsibilities in their operation. Upon completion, students should be able to describe and apply the principles of management to multi-function, multi-day conferences and events.

HRM 215 Restaurant Management 3 0 0 3
 Prerequisites: CUL 135, CUL 135A
 Corequisites: None
 This course provides an overview of the various challenges and responsibilities encountered in managing a food and beverage operation. Topics include planning, administration, organization, accounting, marketing, and human resources from an integrated managerial viewpoint. Upon completion, students should be able to demonstrate an understanding of the operation of a restaurant.

HRM 220 Food and Beverage Controls 3 0 0 3
 Prerequisites: ACC 175, MAT 110 or MAT 115
 Corequisites: None
 This course introduces controls and accounting procedures used in the hospitality industry. Topics include analysis of financial statements, reports, and costs. Upon completion, students should be able to understand and apply food, beverage, and labor cost control systems.

HRM 225 Beverage Management 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the management of beverage operations in a hospitality operation. Topics include history, service, procurement, storage, and control of wines, fermented and distilled beverages, sparkling waters, coffees, and teas. Upon completion, students should be able to demonstrate knowledge of the beverages consumed in a hospitality operation.

HRM 240 Hospitality Marketing 3 0 0 3
 Prerequisites: HRM 110
 Corequisites: None
 This course covers planning, organizing, directing, and analyzing the results of marketing programs in the hospitality industry. Emphasis is placed on market segmentation and analysis, product and image development, sales planning, advertising, public relations, and collateral materials. Upon completion, students should be able to prepare a marketing plan applicable to the hospitality industry.

HRM 280 Hospitality Management Problems	3	0	0	3
Prerequisites: HRM 120, HRM 125, HRM 220				
Corequisites: None				
This course addresses current global, national, and local concerns and issues in the hospitality industry. Emphasis is placed on problem-solving skills using currently available resources. Upon completion, students should be able to apply hospitality management principles to real challenges facing industry managers.				
HSC 120 CPR	0	2	0	1
Prerequisites: None				
Corequisites: None				
This course covers the basic knowledge and skills for the performance of infant, child, and adult CPR and the management of foreign body airway obstruction. Emphasis is placed on recognition, assessment, and proper management of emergency care. Upon completion, students should be able to perform infant, child, and adult CPR and manage foreign body airway obstructions.				
HSE 110 Introduction to Human Services	2	2	0	3
Prerequisites: None				
Corequisites: None				
This course introduces the human services field, including the history, agencies, roles, and careers. Topics include personal/professional characteristics, diverse populations, community resources, disciplines in the field, systems, ethical standards, and major theoretical and treatment approaches. Upon completion, students should be able to identify the knowledge, skills, and roles of the human services worker.				
HSE 112 Group Process I	1	2	0	2
Prerequisites: None				
Corequisites: None				
This course introduces interpersonal concepts and group dynamics. Emphasis is placed on self-awareness facilitated by experiential learning in small groups with analysis of personal experiences and the behavior of others. Upon completion, students should be able to show competence in identifying and explaining how people are influenced by their interactions in group settings.				
HSE 123 Interviewing Techniques	2	2	0	3
Prerequisites: None				
Corequisites: None				
This course covers the purpose, structure, focus, and techniques employed in effective interviewing. Emphasis is placed on observing, attending, listening, responding, recording, and summarizing of personal histories with instructor supervision. Upon completion, students should be able to perform the basic interviewing skills needed to function in the helping relationship.				
HSE 125 Counseling	2	2	0	3
Prerequisites: PSY 150				
Corequisites: None				
This course covers the major approaches to psychotherapy and counseling, including theory, characteristics, and techniques. Emphasis is placed on facilitation of self-exploration, problem solving, decision making, and personal growth. Upon completion, students should be able to understand various theories of counseling and demonstrate counseling techniques.				

HSE 127 Conflict Resolution	2	2	0	3
Prerequisites: None				
Corequisites: None				
This course introduces conflict resolution and mediation theory and practice. Emphasis is placed on achieving compromise and a win/win perception. Upon completion, students should be able to demonstrate competence in identifying seemingly dissimilar positions and facilitating agreement.				
HSE 145 Child Abuse and Neglect	3	0	0	3
Prerequisites: None				
Corequisites: None				
This course explores the abused and neglected child, including the nature and dimension of the problem. Emphasis is placed on various types of abuse and neglect, their causes, proper treatment, and reporting laws and procedures. Upon completion, students should be able to identify family intervention and counseling techniques to help parents effectively cope in parent-child conflicts.				
HSE 155 Community Resources Management	2	0	0	2
Prerequisites: None				
Corequisites: None				
This course focuses on the working relationships between human services agencies and the community. Emphasis is placed on identification and observation of community resources which contribute to the achievement of the human services mission. Upon completion, students should be able to demonstrate knowledge about mobilizing of community resources, marshaling public support, and determining appropriate sources of funding.				
HSE 210 Human Services Issues	2	0	0	2
Prerequisites: None				
Corequisites: None				
This course covers current issues and trends in the field of human services. Emphasis is placed on contemporary topics with relevance to special issues in a multi-faceted field. Upon completion, students should be able to integrate the knowledge, skills, and experiences gained in classroom and clinical experiences with emerging trends in the field.				
HSE 220 Case Management	2	2	0	3
Prerequisites: HSE 110				
Corequisites: None				
This course covers the variety of tasks associated with professional case management. Topics include treatment planning, needs assessment, referral procedures, and follow-up and integration of services. Upon completion, students should be able to effectively manage the care of the whole person from initial contact through termination of services.				
HSE 225 Crisis Intervention	3	0	0	3
Prerequisites: None				
Corequisites: None				
This course introduces the basic theories and principles of crisis intervention. Emphasis is placed on identifying and demonstrating appropriate and differential techniques for intervening in various crisis situations. Upon completion, students should be able to assess crisis situations and respond appropriately.				
HSE 250 Financial Services	2	0	0	2
Prerequisites: None				
Corequisites: None				
This course introduces those agencies that provide income maintenance casework services. Emphasis is placed on qualifying applicants for a variety of economic assistant programs offered by human services agencies. Upon completion, students should be able to make a factual and objective assessment of a client's economic situation to qualify them for economic assistance.				

HUM 110 Technology and Society 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course considers technological change from historical, artistic, and philosophical perspectives and its effect on human needs and concerns. Emphasis is placed on the causes and consequences of technological change. Upon completion, students should be able to critically evaluate the implications of technology. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. This course is also available through the Virtual Learning Community (VLC).*

HUM 115 Critical Thinking 3 0 0 3
 Prerequisites: ENG 090, ENG 095, or RED 090, or placement
 Corequisites: None
 This course introduces the use of critical thinking skills in the context of human conflict. Emphasis is placed on evaluating information, problem solving, approaching cross-cultural perspectives, and resolving controversies and dilemmas. Upon completion, students should be able to demonstrate orally and in writing the use of critical thinking skills in the analysis of appropriate texts. Students will also explore the parameters of selected ethical issues.

HUM 121 The Nature of America 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an interdisciplinary survey of the American cultural, social, and political experience. Emphasis is placed on the multicultural character of American society, distinctive qualities of various regions, and the American political system. Upon completion, students should be able to analyze significant cultural, social, and political aspects of American life. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

HUM 130 Myth in Human Culture 3 0 0 3
 Prerequisites: ENG 090 and RED 090, or placement
 Corequisites: None
 This course provides an in-depth study of myths and legends. Topics include the varied sources of myths and their influence on the individual and society within diverse cultural contexts. Upon completion, students should be able to demonstrate a general familiarity with myths and a broad-based understanding of the influence of myths and legends on modern culture. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

HUM 160 Introduction to Film 2 2 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course introduces the fundamental elements of film artistry and 7165 production. Topics include film styles, history, and production techniques, as well as the social values reflected in film art. Upon completion, students should be able to critically analyze the elements covered in relation to selected films.

HUM 161 Advanced Film Studies 2 2 0 3
 Prerequisites: HUM 160
 Corequisites: None
 This course provides an advanced study of film art and production, building on skills learned in HUM 160. Topics include film production techniques, film genres, examination of master directors' styles, and the relation of film to culture. Upon completion, students should be able to recognize and critically analyze advanced elements of film production.

HUM 170 The Holocaust 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course provides a survey of the destruction of European Jewry by the Nazis during World War II. Topics include the anti-Semitic ideology, bureaucratic structures, and varying conditions of European occupation and domination under the Third Reich. Upon completion, students should be able to demonstrate an understanding of the historical, social, religious, political, and economic factors which cumulatively resulted in the Holocaust. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

HUM 211 Humanities I 3 0 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course introduces the humanities as a record in literature, music, art, history, religion, and philosophy of humankind's answers to the fundamental questions of existence. Emphasis is placed on the interconnectedness of various aspects of cultures from ancient through early modern times. Upon completion, students should be able to identify significant figures and cultural contributions of the periods studied. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

HUM 212 Humanities II 3 0 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course introduces the humanities as a record in literature, music, art, history, religion, and philosophy of humankind's answers to the fundamental questions of existence. Emphasis is placed on the interconnectedness of various aspects of cultures from early modern times to the present. Upon completion, students should be able to identify significant figures and cultural contributions of the periods studied. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

HUM 220 Human Values and Meaning 3 0 0 3
 Prerequisites: ENG 111, ENG 112, ENG 113, ENG 114
 Corequisites: None
 This course presents some major dimensions of human experience as reflected in art, music, literature, philosophy, and history. Topics include the search for identity, the quest for knowledge, the need for love, the individual and society, and the meaning of life. Upon completion, students should be able to recognize interdisciplinary connections and distinguish between open and closed questions and between narrative and scientific models of understanding. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

HUM 230 Leadership Development 3 0 0 3
 Prerequisites: ENG 090 and RED 090; ENG 111
 Corequisites: None
 This course explores the theories and techniques of leadership and group process. Emphasis is placed on leadership styles, theories of group dynamics, and the moral and ethical responsibilities of leadership. Upon completion, students should be able to identify and analyze a personal philosophy and style of leadership and integrate these concepts in various practical situations.

HYD 110 Hydraulics/Pneumatics I 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the basic components and functions of hydraulic and pneumatic systems. Topics include standard symbols, pumps, control valves, control assemblies, actuators, FRL, maintenance procedures, and switching and control devices. Upon completion, students should be able to understand the operation of a fluid power system, including design, application, and troubleshooting.

HYD 111 Mobile Hydraulic Systems 1 4 0 3
 Prerequisites: None
 Corequisites: None
 This course covers hydraulic components on mobile equipment including construction equipment, transportation, and farm equipment. Topics include servicing of pumps, testing and adjusting components, test points, and proper use and care of test equipment. Upon completion, students should be able to use proper test equipment to locate and repair problems on equipment.

HYD 112 Hydraulics/Med/Heavy Duty 1 2 - 2
 Prerequisites: None
 Corequisites: None
 This course introduces hydraulic theory and applications as applied to mobile equipment. Topics include component studies such as pumps, motors, valves, cylinders, filters, reservoirs, lines, and fittings. Upon completion, students should be able to identify, diagnose, test, and repair hydraulic systems using schematics and technical manuals.

HYD 121 Hydraulics/Pneumatics II 1 3 0 2
 Prerequisites: HYD 110
 Corequisites: None
 This course is a continuation of HYD 110 and provides further investigation into fluid power systems. Topics include advanced system components, troubleshooting, and other related topics. Upon completion, students should be able to demonstrate an understanding of the installation, application, operation, and maintenance of fluid power components and systems.

HYD 134 Hydraulic/Hydrostatic Construction 2 4 0 4
 Prerequisites: None
 Corequisites: None
 This course covers the hydraulic/hydrostatic components of construction equipment hydraulics and power trains. Topics include testing, adjusting, repair, and replacement of components that are applied to construction equipment hydraulics and transmissions along with other related topics. Upon completion, students should be able to use proper diagnostic procedures and identify, repair, and replace hydraulic and hydrostatic systems on construction equipment.

INT 110 International Business 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an overview of the environment, concepts, and basic differences involved in international business. Topics include forms of foreign involvement, international trade theory, governmental influences on trade and strategies, international organizations, multinational corporations, personnel management, and international marketing. Upon completion, students should be able to describe the foundation of international business.

ISC 110 Workplace Safety 1 0 0 1
 Prerequisites: None
 Corequisites: None
 This course introduces the basic concepts of workplace safety. Topics include fire, ladders, lifting, lock-out/tag-out, personal protective devices, and other workplace safety issues related to OSHA compliance. Upon completion, students should be able to demonstrate an understanding of the components of a safe workplace.

ISC 112 Industrial Safety 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the principles of industrial safety. Emphasis is placed on industrial safety, OSHA and environmental regulations. Upon completion, students should be able to demonstrate knowledge of a safe working environment and OSHA compliance. *This course is also available through the Virtual Learning Community (VLC).*

ISC 121 Environmental Health and Safety 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers workplace environmental, health, and safety issues. Emphasis is placed on managing the implementation and enforcement of environmental health and safety regulations and on preventing accidents, injuries, and illnesses. Upon completion, students should be able to demonstrate an understanding of basic concepts of environmental, health, and safety issues.

ISC 128 Industrial Leadership 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces principles and techniques for managers in modern industry. Topics include leadership traits, management principles and processes, managing conflict, group dynamics, team building, counseling, motivation, and communication. Upon completion, students should be able to understand and apply leadership and management principles in work situations.

ISC 132 Manufacturing Quality Control 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces quality concepts and techniques used in industry. Topics include elementary statistics and probability, process control, process capability, and quality improvement tools. Upon completion, students should be able to demonstrate an understanding of the concepts and principles of quality and apply them to the work environment. Each student will be taught statistical analysis techniques, using computer software in a laboratory environment.

ISC 133 Manufacturing Management Practices	2	0	-	2
Prerequisites: None				
Corequisites: None				
This course covers successful industrial organizations and management practices for improving quality and productivity. Topics include self-managed work teams, problem-solving skills, and production management techniques. Upon completion, students should be able to demonstrate an understanding of day-to-day plant operations, team management processes, and the principles of group dynamics.				
ISC 136 Productivity Analysis I	2	3	0	3
Prerequisites: None				
Corequisites: None				
This course covers modern methods of improving productivity. Topics include methods analysis, standardized practices, process analysis, and human factors. Upon completion, students should be able to apply productivity improvement techniques.				
ISC 175 QA Fundamentals	1	0	0	1
Prerequisites: None				
Corequisites: None				
This course is designed to increase fundamental knowledge in the philosophies, principles, and practice of quality in the work environment. Topics include the history and basics of quality, philosophies of quality, daily application of principles, and roles of quality professionals with emphasis on cGMP environment. Upon completion, students should be able to discuss quality fundamentals, components of quality systems, and identify standards and programs of quality.				
ISC 221 Statistical Quality Control	3	0	0	3
Prerequisites: None				
Corequisites: None				
This course covers the principles and techniques of statistical process control for the improvement of productivity. Emphasis is placed on basic statistics for quality control, organization and procedures for efficient quality control including inspections, process control, and tests of significance. Upon completion, students should be able to apply statistical principles and techniques to enhance production.				
ISC 226 Facilities Design	3	2	0	4
Prerequisites: ISC 136				
Corequisites: None				
This course introduces the methods and principles used to design efficient facilities. Emphasis is placed on efficient processes required to optimize facilities design. Upon completion, students should be able to design efficient facilities.				
ISC 230 Simulation Production Processes	1	3	0	2
Prerequisites: None				
Corequisites: None				
This course introduces fundamental principles and procedures for simulation modeling of production processes. Emphasis is placed on problem-solving and engineering applications of simulation modeling for quality enhancement and productivity improvement. Upon completion, students should be able to analyze and model a production process to obtain optimum productive operations.				

ISC 237 Quality Management	2	3	0	3
Prerequisites: None				
Corequisites: None				
This course covers the process by which successful manufacturing organizations achieve customer satisfaction in all processes in the organization. Topics include quality models and approaches, such as MBNQA, ISO 9000, benchmarking, and Deming's 14 Points, and the incorporation of SPC improvement techniques. Upon completion, students should be able to integrate SPC techniques with successful management practices for a comprehensive understanding of continuous quality improvement.				
ISC 243 Production and Operations Management I	2	3	0	3
Prerequisites: None				
Corequisites: None				
This course introduces concepts used to analyze and solve productivity and operational problems. Topics include operations strategy, forecasting, resource allocation, and materials management. Upon completion, students should be able to recognize, analyze, and solve a variety of productivity and operational problems.				
ISC 244 Production and Operations Management II	2	3	0	3
Prerequisites: ISC 243				
Corequisites: None				
This course covers advanced production and operations management concepts, including the use of computer programs to analyze/solve manufacturing problems. Topics include systems analysis, resource allocation, cost control, and productivity improvement using advanced tools such as linear programming, ABC costing, manufacturing modeling, and manufacturing simulation. Upon completion, students should be able to recognize, analyze, and solve a variety of complex production and operations problems.				
ISC 255 Engineering Economy	2	2	0	3
Prerequisites: None				
Corequisites: None				
This course covers the process of economic evaluation of manufacturing industrial alternatives such as equipment selection, replacement studies, and cost reduction proposals. Topics include discounted cash flows, time value of money, income tax considerations, internal rates of return, and comparison of alternatives using computer programs. Upon completion, students should be able to analyze complex manufacturing alternatives based on engineering economy principles.				
ISC 277 Quality Technology	4	0	0	4
Prerequisites: None				
Corequisites: None				
This course presents quality assurance topics relating to an effective quality system. Emphasis is placed on quality management concepts, including sampling and reliability. Upon completion, students should have the basic knowledge required to take the ASQC Certified Quality Technician Exam.				
ISC 278 cGMP Quality Systems	2	0	0	2
Prerequisites: None				
Corequisites: None				
This course focuses on the development, implementation, and on-going maintenance of a quality system in a cGMP environment. Topics include the cGMP standard, components of cGMP quality systems, quality function roles and training, development of documentation such as SOPs, and system review procedures. Upon completion, the student should be able to identify the components of a quality system and develop a quality system manual utilizing the cGMP standard.				

ISC 280 Validation Fundamentals 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course covers the fundamental concepts and components of a validation program in a cGMP environment. Emphasis is placed on FDA requirements concerning validation, types of validation, documentation, procedures, and the QA role. Upon completion, students should be able to discuss the purpose of validation, identify the steps in the validation process, and effectively utilize sample documentation.

ITN 110 See WEB 111.

ITN 120 See WEB 120.

ITN 130 See WEB 230.

ITN 140 See WEB 140.

ITN 150 Internet Protocols 2 2 0 3
 Prerequisites: NET 110
 Corequisites: None
 This course introduces the student to the application protocols used on the Internet. Topics include HTTP, Secure HTTP, TCP/IP, and related applications such as FTP, TELNET, and PING. Upon completion, students should be able to use the protocols as they pertain to the Internet, as well as, setup and maintain these protocols.

ITN 160 See WEB 210.

ITN 170 See WEB 250.

ITN 180 See WEB 180.

ITN 193 Selected Topics in Internet Technologies - - - 3
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Internet Technologies. Emphasis is placed on subject matter appropriate to internet technologies. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ITN 196 Seminar in: C++ Test Prep 0 0 3 1
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to explore topics of current interest in Computer Programming. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

ITN 198 Seminar in Internet Technologies - - - 3
 Prerequisites: CIS 115
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Internet Technologies. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

ITN 210 See WEB 211.

ITN 220 See WEB 220.

ITN 240 See WEB 240.

ITN 250 Implementing Internet Service 2 2 0 3
 Prerequisites: RED 090
 Corequisites: ITN 130 or ITN 150
 This course covers the setup and configuration of news, mail, ftp, and WWW services. Topics include selection and installation of software to support common Internet services and related topics. Upon completion, students should be able to install and configure the most commonly used Internet service software.

ITN 260 See WEB 260.

ITN 270 Advanced Internet Databases 2 2 0 3
 Prerequisites: ITN 170
 Corequisites: None
 This is the second of two courses on Internet databases. Topics include database distribution and replication, data warehousing, integration of desktop and Internet database structures. Upon completion, students should be able to design and implement an Internet database.

ITN 280 Unix Internet Programming 2 2 0 3
 Prerequisites: RED 090
 Corequisites: None
 This course presents advanced concepts and features of the UNIX operating system as they pertain to Internet programming. Topics will include process control, shell-programming and scripts, advanced search techniques, power user utilities and programming for Internet service maintenance. Upon completion, students should be able to successfully perform various Internet-related UNIX programming tasks.

ITN 285 See WEB 285.

ITN 289 See WEB 289.

ITN 293 Selected Topics: PL/SQL Programming 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Internet Technologies. Emphasis is placed on subject matter appropriate to internet technologies. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ITN 298 Seminar in Internet Technologies 2 2 0 3
 Prerequisites: Varies, based on topics
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Internet Technologies. Emphasis is placed on subject matter appropriate to internet technologies. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

J

JOU 110 Introduction to Journalism 3 0 0 3

Prerequisites: None
Corequisites: None

This course presents a study of journalistic news, feature, and sports writing. Emphasis is placed on basic news writing techniques and on related legal and ethical issues. Upon completion, students should be able to gather, write, and edit news, feature, and sports articles.

JOU 111 Publication Workshop I 1 3 0 2

Prerequisites: JOU 110
Corequisites: None

This course introduces the basic techniques of producing a publication. Emphasis is placed on writing, editing, layout, design, and printing. Upon completion, students should be able to demonstrate competence in the various phases of publication production.

JOU 242 Introduction to Multimedia 2 2 0 3

Prerequisites: CIS 110
Corequisites: None

This course is an introduction to the basic formatting skills necessary to create messages for the multimedia environment such as web-based and other digital formats. Emphasis is on the use of computers to present and combine text, graphics, audio, and video. Upon completion, students should be able to create state-of-the-art multimedia presentations. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

L

LAR 111 Introduction to Landscape Architectural Technology 1 6 0 3

This course introduces basic architectural drafting techniques, lettering, and use of architectural and engineering scales. Topics include creating landscape architectural plans, sections, and details; reprographic techniques; and other related topics. Upon completion, students should be able to prepare and print scaled drawings within minimum landscape architectural standards.

LAR 112 Landscape Materials and Methods 3 2 0 4

Prerequisites: None
Corequisites: None

This course introduces landscape architecture construction materials and their methodologies. Topics include landscape construction terminology, materials and their properties, manufacturing processes, landscape construction techniques, and other related topics. Upon completion, students should be able to detail landscape construction materials and properties.

LAR 113 Residential Landscape Design 1 6 0 3

Prerequisites: LAR 111
Corequisites: None

The course covers the creation of residential landscape design working drawings. Topics include residential plans, elevation, sections, plant selection/lists, and other related topics. Upon completion, students should be able to prepare a set of residential landscape working drawings which are within accepted architectural standards.

LAR 193 Selected Topics in Landscape Architecture - - - 3

Prerequisites: Varies, based on topic
Corequisites: None

This course provides an opportunity to explore areas of current interest in Landscape Architecture Technology. Emphasis is placed on subject matter appropriate to landscape architecture. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

LAR 211 Landscape Construction and Design 1 6 0 3

Prerequisites: LAR 113
Corequisites: None

This course covers commercial landscape construction and design techniques. Topics include creation of commercial landscape architecture plans, sections, and details; plotting techniques; and other related topics. Upon completion, students should be able to prepare a set of working drawings and plot scaled drawings within landscape architectural standards.

LAR 223 Landscape Design Project 2 6 0 4

Prerequisites: ARC 114, LAR 211
Corequisites: None

This course provides the opportunity to design and prepare landscape contract documents. Topics include schematic design, design development, construction documents, landscape architecture plans, and other related topics. Upon completion, students should be able to prepare a set of working drawings within landscape architectural standards.

LAR 230 Principles of Horticulture I 3 3 0 4

Prerequisites: None
Corequisites: None

This course introduces the identification, selection, and installation of landscape plants. Topics include ornamental plant selection, sun and shade plants, fertilization, pruning, pest and disease control, and other related topics. Upon completion, students should be able to select plants for different landscape situations.

LAR 231 Principles of Horticulture II 2 3 0 3

Prerequisites: LAR 230
Corequisites: None

This course is a continuation of LAR 230 and covers the identification, selection, and installation of landscape plants. Topics include deciduous/evergreen and interior plant selection, sun and shade plants, fertilization, pruning, pest and disease identification, and other related topics. Upon completion, students should be able to select plants for different landscape situations.

LAR 241 Advanced Site Planning 2 2 0 3
 Prerequisites: ARC 240
 Corequisites: None
 This course covers advanced site planning, grading plants, and earthwork calculations. Topics include advanced site analysis, site work, site utilities, cut and fill, soil erosion control, and other related topics. Upon completion, students should be able to prepare site development plans and details and perform cut and fill calculations.

LAR 242 Planning and Environment 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the historical development of urban and rural environmental problems and issues. Emphasis is placed on governmental response to environmental issues, built and natural environments, historical conflicts, and attempts to produce planning compatibility. Upon completion, students should be able to demonstrate an understanding of the importance of considering natural resources when making political and planning decisions.

LAR 250 Survey of Landscape Architecture 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the historical trends in landscape architectural forms. Emphasis is placed on landscape architectural history and current trends. Upon completion, students should be able to demonstrate an understanding of significant historical and current landscape architectural styles. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

LAT 111 Elementary Latin I 3 0 0 3
 Prerequisites: ENG 090 or placement
 Corequisites: LAT 181
 This course introduces the fundamental elements of Latin within a cultural context. Emphasis is placed on the development of basic reading and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to written Latin and demonstrate cultural awareness.

LAT 112 Elementary Latin II 3 0 0 3
 Prerequisites: LAT 111
 Corequisites: LAT 182
 This course is a continuation of LAT 111 focusing on the fundamental elements of Latin within a cultural context. Emphasis is placed on the progressive development of reading, vocabulary, and grammar skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to written Latin and demonstrate further cultural awareness. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

LAT 181 Latin Lab I 0 0 2 1
 Prerequisites: ENG 090 or placement
 Corequisites: LAT 111
 This course provides an opportunity to enhance acquisition of the fundamental elements of Latin. Emphasis is placed on the progressive development of basic reading and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to written Latin and demonstrate cultural awareness. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

LAT 182 Latin Lab II 0 0 2 1
 Prerequisites: LAT 181
 Corequisites: LAT 112
 This course provides an opportunity to enhance acquisition of the fundamental elements of Latin. Emphasis is placed on the progressive development of basic reading and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to demonstrate increasing proficiency in reading and writing Latin and demonstrate cultural awareness. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement*

LAT 211 Intermediate Latin I 3 0 0 3
 Prerequisites: LAT 112
 Corequisites: LAT 281
 This course provides a review and expansion of the essential skills of Latin. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to accurately read and comprehend Latin. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

LAT 212 Intermediate Latin II 3 0 0 3
 Prerequisites: LAT 211
 Corequisites: LAT 282
 This course provides a continuation of LAT 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to demonstrate increased accuracy in reading and comprehension of Latin. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts*

LAT 281 Latin Lab 3 0 0 2 1
 Prerequisites: LAT 182
 Corequisites: LAT 211
 This course provides an opportunity to enhance the review and expansion of written skills in Latin. Emphasis is placed on the study of representative literary and cultural texts. Upon completion, students should be able to comprehend and respond with grammatical accuracy to written Latin and demonstrate cultural awareness.

LAT 282 Latin Lab 4 0 0 2 1
 Prerequisites: LAT 281
 Corequisites: LAT 212
 This course provides an opportunity to enhance the review and expansion of the essential skills of Latin. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts through the use of supplementary learning materials. Upon completion, students should be able to demonstrate increased proficiency in reading and writing Latin. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

M

MAC 111 Machining Technology I 2 12 0 6

Prerequisites: None
Corequisites: None

This course introduces machining operations as they relate to the metalworking industry. Topics include machine shop safety, measuring tools, lathes, drilling machines, saws, milling machines, bench grinders, and layout instruments. Upon completion, students should be able to safely perform the basic operations of measuring, layout, drilling, sawing, turning, and milling.

MAC 111a Machining Technology I- Part 1 1 6 0 3

Prerequisites: None
Corequisites: None

This course is the first half of MAC 111 (see the description for MAC 111 above).

MAC 111b Machining Technology I- Part 2 1 6 0 3

Prerequisites: MAC 111a
Corequisites: None

This course is the second half of MAC 111 (see the description for MAC 111 above).

MAC 112 Machining Technology II 2 12 0 6

Prerequisites: MAC 111
Corequisites: None

This course provides additional instruction and practice in the use of precision measuring tools, lathes, milling machines, and grinders. Emphasis is placed on setup and operation of machine tools including the selection and use of work holding devices, speeds, feeds, cutting tools, and coolants. Upon completion, students should be able to perform basic procedures on precision grinders and advanced operations of measuring, layout, drilling, sawing, turning, and milling.

MAC 113 Machining Technology III 2 12 0 6

Prerequisites: MAC 112
Corequisites: None

This course provides an introduction to advanced and special machining operations. Emphasis is placed on working to specified tolerances with special and advanced setups. Upon completion, students should be able to produce a part to specifications.

MAC 114 Introduction to Metrology 2 0 0 2

Prerequisites: None
Corequisites: None

This course introduces the care and use of precision measuring instruments. Emphasis is placed on the inspection of machine parts and use of a wide variety of measuring instruments. Upon completion, students should be able to demonstrate the correct use of measuring instruments.

MAC 121 Introduction to CNC 2 0 0 2

Prerequisites: None
Corequisites: None

This course introduces the concepts and capabilities of computer numerical control machine tools. Topics include setup, operation, and basic applications. Upon completion, students should be able to explain operator safety, machine protection, data input, program preparation, and program storage.

MAC 122 CNC Turning 1 3 0 2

Prerequisites: None
Corequisites: None

This course introduces the programming, setup, and operation of CNC turning centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC turning centers.

MAC 124 CNC Milling 1 3 0 2

Prerequisites: None
Corequisites: None

This course introduces the manual programming, setup, and operation of CNC machining centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC machining centers.

MAC 126 CNC Metal Fabrication 1 3 0 2

Prerequisites: None
Corequisites: None

This course introduces CNC operations used in precision metal fabrication. Topics include CNC control of shears, brakes, punch presses, and lasers and the programming techniques used to produce parts. Upon completion, students should be able to demonstrate knowledge of equipment operations, CNC control functions, and part programming.

MAC 151 Machining Calculations 1 2 0 2

Prerequisites: None
Corequisites: None

This course introduces basic calculations as they relate to machining occupations. Emphasis is placed on basic calculations and their applications in the machine shop. Upon completion, students should be able to perform basic shop calculations.

MAC 152 Advanced Machining Calculations 1 2 0 2

Prerequisites: None
Corequisites: None

This course combines mathematical functions with practical machine shop applications and problems. Emphasis is placed on gear ratios, lead screws, indexing problems, and their applications in the machine shop. Upon completion, students should be able to calculate solutions to machining problems.

MAC 153 Compound Angles 1 2 0 2

Prerequisites: MAT 120
Corequisites: None

This course introduces the application of basic types and uses of compound angles. Emphasis is placed on problem solving by tilting and rotating adjacent angles to resolve an unknown compound angle. Upon completion, students should be able to set up and develop compound angles on parts using problem-solving techniques. *This course is a unique concentration requirement of the Tool, Die, and Mold Making concentration in the Machining Technology program.*

MAC 222 Advanced CNC Turning 1 3 0 2

Prerequisites: MAC 122
Corequisites: None

This course covers advanced methods in setup and operation of CNC turning centers. Emphasis is placed on programming and production of complex parts. Upon completion, students should be able to demonstrate skills in programming, operations, and setup of CNC turning centers.

MAC 224 Advanced CNC Milling 1 3 0 2
 Prerequisites: MAC 124
 Corequisites: None
 This course covers advanced methods in setup and operation of CNC machining centers. Emphasis is placed on programming and production of complex parts. Upon completion, students should be able to demonstrate skills in programming, operations, and setup of CNC machining centers.

MAC 229 CNC Programming 2 0 0 2
 Prerequisites: MAC 121, MAC 122, MAC 124, or MAC 226
 Corequisites: None
 This course provides concentrated study in advanced programming techniques for working with modern CNC machine tools. Topics include custom macros and subroutines, canned cycles, and automatic machining cycles currently employed by the machine tool industry. Upon completion, students should be able to program advanced CNC functions while conserving machine memory.

MAC 231 CNC Graphics Programming: Turning 1 4 0 3
 Prerequisites: MAC 121 or MAC 122
 Corequisites: None
 This course introduces Computer Numerical Control graphics programming and concepts for turning center applications. Emphasis is placed on the interaction of menus to develop a shape file in a graphics CAM system and to develop tool path geometry and part geometry. Upon completion, students should be able to develop a job plan using CAM software, include machine selection, tool selection, operational sequence, speed, feed, and cutting depth.

MAC 232 CNC Graphics Programming: Milling 1 4 0 3
 Prerequisites: MAC 121 or MAC 122
 Corequisites: None
 This course introduces Computer Numerical Control graphics programming and concepts for machining center applications. Emphasis is placed on developing a shape file in a graphics CAM system and transferring coded information from CAM graphics to the CNC milling center. Upon completion, students should be able to develop a complete job plan using CAM software to create a multi-axis CNC program.

MAC 241 Jigs and Fixtures I 2 6 0 4
 Prerequisites: MAC 112
 Corequisites: None
 This course introduces the application and use of jigs and fixtures. Emphasis is placed on design and manufacture of simple jigs and fixtures. Upon completion, students should be able to design and build simple jigs and fixtures.

MAC 243 Die Making I 2 6 0 4
 Prerequisites: MAC 112
 Corequisites: None
 This course introduces the principles and applications of die making. Topics include types, construction, and application of dies. Upon completion, students should be able to design and build simple dies.

MAC 244 Die Making II 1 9 0 4
 Prerequisites: MAC 243
 Corequisites: None
 This course provides continued study in the application and use of dies. Emphasis is placed on the design and manufacturing of complex dies. Upon completion, students should be able to design and build complex dies.

MAC 245 Mold Construction I 2 6 0 4
 Prerequisites: MAC 112
 Corequisites: None
 This course introduces the principles of mold making. Topics include types, construction, and application of molds. Upon completion, students should be able to design and build simple molds.

MAC 246 Mold Construction II 1 9 0 4
 Prerequisites: MAC 245
 Corequisites: None
 This course provides continued study in the application and use of molds. Emphasis is placed on design and manufacturing of complex molds. Upon completion, students should be able to design and build complex molds.

MAT 001 Mathematics Skills Lab - - - -
 Prerequisites: None
 Corequisites: None
 Designed to support all curriculum mathematics courses and other curriculum courses requiring the use of mathematics skills.

MAT 050 Basic Math Skills 3 2 0 4
 Prerequisites: None
 Corequisites: None
 This course is designed to strengthen basic math skills. Topics include properties, rounding, estimating, comparing, converting, and computing whole numbers, fractions, and decimals. Upon completion, students should be able to perform basic computations and solve relevant mathematical problems.

MAT 060 Essential Mathematics 3 2 0 4
 Prerequisites: MAT 050 or placement
 Corequisites: None
 This course is a comprehensive study of mathematical skills which should provide a strong mathematical foundation to pursue further study. Topics include principles and applications of decimals, fractions, percents, ratio and proportion, order of operations, geometry, measurement, and elements of algebra and statistics. Upon completion, students should be able to perform basic computations and solve relevant, multi-step mathematical problems using technology where appropriate.

MAT 070 Introductory Algebra 3 2 0 4
 Prerequisites: MAT 060 or placement
 Corequisites: RED 080 or ENG 085
 This course establishes a foundation in algebraic concepts and problem solving. Topics include signed numbers, exponents, order of operations, simplifying expressions, solving linear equations and inequalities, graphing, formulas, polynomials, factoring, and elements of geometry. Upon completion, students should be able to apply the above concepts in problem solving using appropriate technology.

MAT 080 Intermediate Algebra 3 2 0 4
 Prerequisites: MAT 070 or placement
 Corequisites: RED 080 or ENG 085
 This course continues the study of algebraic concepts with emphasis on applications. Topics include factoring; rational expressions; rational exponents; rational, radical, and quadratic equations; systems of equations; inequalities; graphing; functions; variations; complex numbers; and elements of geometry. Upon completion, students should be able to apply the above concepts in problem solving using appropriate technology.

MAT 090 Accelerated Algebra 3 2 0 4
 Prerequisites: MAT 060 or MAT 080 or placement
 Corequisites: RED 080 or ENG 085
 This course covers algebraic concepts with emphasis on applications. Topics include those covered in MAT 070 and MAT 080. Upon completion, students should be able to apply algebraic concepts in problem solving using appropriate technology.

MAT 095 Algebraic Concepts 3 0 0 3
 Prerequisites: MAT 080
 Corequisites: None
 This course covers algebraic concepts with an emphasis on applications. Topics include linear, quadratic, absolute value, rational and radical equations, sets, real and complex numbers, exponents, graphing, formulas, polynomials, systems of equations, inequalities, and functions. Upon completion, students should be able to apply the above topics in problem solving using appropriate technology.

MAT 099 Using Technology in Math 1 0 0 1
 Prerequisites: None
 Corequisites: None
 This course provides an introduction to the technology used in the study of mathematics. Topics include the use of technology to perform calculations, graph and analyze functions, create algebraic models, perform statistical analysis, and make tables of values. Upon completion, students should be able to effectively use graphing calculators and spreadsheets as mathematical tools to explore functions, analyze data, and solve problems.

MAT 101 Applied Mathematics I 2 2 0 3
 Prerequisites: MAT 060
 Corequisites: None
 This course is a comprehensive review of arithmetic with basic algebra designed to meet the needs of certificate and diploma programs. Topics include arithmetic and geometric skills used in measurement, ratio and proportion, exponents and roots, applications of percent, linear equations, formulas, and statistics. Upon completion, students should be able to solve practical problems in their specific areas of study.

MAT 110 Mathematical Measurement 2 2 0 3
 Prerequisites: MAT 070
 Corequisites: None
 This course provides an activity-based approach to utilizing, interpreting, and communicating data in a variety of measurement systems. Topics include accuracy, precision, conversion, and estimation within metric, apothecary, and avoirdupois systems; ratio and proportion; measures of central tendency and dispersion; and charting of data. Upon completion, students should be able to apply proper techniques to gathering, recording, manipulating, analyzing, and communicating data.

MAT 115 Mathematical Models 2 2 0 3
 Prerequisites: MAT 070
 Corequisites: None
 This course develops the ability to utilize mathematical skills and technology to solve problems at a level found in non-mathematics-intensive programs. Topics include applications to percent, ratio and proportion, formulas, statistics, functional notation, linear functions and their groups, probability, sampling techniques, scatter plots, and modeling. Upon completion, students should be able to solve practical problems, reason and communicate with mathematics, and work confidently, collaboratively, and independently.

MAT 121 Algebra and Trigonometry I 2 2 0 3
 Prerequisites: MAT 070
 Corequisites: None
 This course provides an integrated approach to technology and the skills required to manipulate, display, and interpret mathematical functions and formulas used in problem solving. Topics include simplification, evaluation, and solving of algebraic and radical functions; complex numbers; right triangle trigonometry; systems of equations; and the use of technology. Upon completion, students should be able to demonstrate an understanding of the use of mathematics and technology to solve problems and analyze and communicate results.

MAT 122 Algebra/Trigonometry II 2 2 0 3
 Prerequisites: MAT 121
 Corequisites: None
 This course extends the concepts covered in MAT 121 to include additional topics in algebra, function analysis, and trigonometry. Topics include exponential and logarithmic functions, translation and scaling of functions, Sine Law, Cosine Law, vectors, and statistics. Upon completion, students should be able to demonstrate an understanding of the use of technology to solve problems and to analyze and communicate results.

MAT 140 Survey of Mathematics 3 0 0 3
 Prerequisites: MAT 070
 Corequisites: MAT 140A
 This course provides an introduction in a non-technical setting to selected topics in mathematics. Topics may include, but are not limited to, sets, logic, probability, statistics, matrices, mathematical systems, geometry, topology, mathematics of finance, and modeling. Upon completion, students should be able to understand a variety of mathematical applications, think logically, and be able to work collaboratively and independently.

MAT 140A Survey of Mathematics Lab 0 2 0 1
 Prerequisites: MAT 070
 Corequisites: MAT 140
 This course is a laboratory for MAT 140. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 141 Mathematical Concepts I 3 0 0 3
 Prerequisites: MAT 080 or MAT 090
 Corequisites: None
 This course is the first of a two-course sequence that develops a deeper understanding and appreciation of the basic concepts of mathematics. Emphasis is placed on sets, logic, number bases, elementary number theory, introductory algebra, measurement including metrics, and problem solving. Upon completion, students should be able to communicate orally and in writing these basic mathematical concepts. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.*

MAT 141A Mathematical Concepts I Lab 0 2 0 1

Prerequisites: MAT 080 or MAT 090

Corequisites: MAT 141

This course is a laboratory for MAT 141. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

MAT 142 Mathematical Concepts II 3 0 0 3

Prerequisites: MAT 141

Corequisites: None

This course is the second of a two-course sequence that develops a deeper understanding and appreciation of the basic concepts of mathematics. Emphasis is placed on probability, statistics, functions, introductory geometry, and mathematics of finance. Upon completion, students should be able to communicate orally and in writing these basic mathematical concepts and utilize technology as a mathematical tool. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirements in natural sciences/mathematics*

MAT 142A Mathematical Concepts II Lab 0 2 0 1

Prerequisites: MAT 141

Corequisites: MAT 142

This course is a laboratory for MAT 142. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirements in natural sciences/mathematics*

MAT 145 Analytical Mathematics 3 0 0 3

Prerequisites: MAT 080 or MAT 090

Corequisites: None

This course is designed to develop problem-solving and reasoning skills by the study of selected areas of mathematics. Topics include elementary and Boolean algebra, sets, logic, number theory, numeration systems, probability, statistics, and linear programming. Upon completion, students should be able to apply logic and other mathematical concepts.

MAT 145A Analytical Mathematics Lab 0 2 0 1

Prerequisites: MAT 080 or MAT 090

Corequisites: MAT 145

This course is a laboratory for MAT 145. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 151 Statistics I 3 0 0 3

Prerequisites: MAT 080, MAT 090, MAT 095, MAT 120, MAT 121, MAT 140, MAT 161, MAT 171, or MAT 175

Corequisites: MAT 151A

This course provides a project-based approach to the study of basic probability, descriptive and inferential statistics, and decision making. Emphasis is placed on measures of central tendency and dispersion, correlation, regression, discrete and continuous probability distributions, quality control, population parameter estimation, and hypothesis testing. Upon completion, students should be able to describe important characteristics of a set of data and draw inferences about a population from sample data. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics*

MAT 151A Statistics I Lab 0 2 0 1

Prerequisites: MAT 080, MAT 090, MAT 095, MAT 120, MAT 121, MAT 161, MAT 171, or MAT 175

Corequisites: MAT 151

This course is a laboratory for MAT 151. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

MAT 155 Statistical Analysis 3 0 0 3

Prerequisites: MAT 080 or MAT 090

Corequisites: None

This course is an introduction to descriptive and inferential statistics. Topics include sampling, distributions, plotting data, central tendency, dispersion, Central Limits Theorem, confidence intervals, hypothesis testing, correlations, regressions, and multinomial experiments. Upon completion, students should be able to describe data and test inferences about populations using sample data.

MAT 155A Statistical Analysis Lab 0 2 0 1

Prerequisites: MAT 080 or MAT 090

Corequisites: MAT 155

This course is a laboratory for MAT 155. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 161 College Algebra 3 0 0 3

Prerequisites: MAT 080 or MAT 090

Corequisites: None

This course provides an integrated technological approach to algebraic topics used in problem solving. Emphasis is placed on equations and inequalities; polynomials, rational, exponential and logarithmic functions; and graphing and data analysis/modeling. Upon completion, students should be able to choose an appropriate model to fit a data set and use the model for analysis and prediction.

MAT 161A College Algebra Lab 0 2 0 1

Prerequisites: MAT 080 or MAT 090

Corequisites: MAT 161

This course is a laboratory for MAT 161. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 165 Finite Mathematics 3 0 0 3
 Prerequisites: MAT 161
 Corequisites: None
 This course provides topics used to formulate models and to solve and interpret solutions using an algorithmic approach. Topics include linear algebra, linear programming, simplex method, sets and counting, probability, mathematics of finance, and logic. Upon completion, students should be able to demonstrate both an understanding of the theoretical concepts of finite mathematics and the ability to solve related problems.

MAT 165A Finite Mathematics Lab 0 2 0 1
 Prerequisites: MAT 161
 Corequisites: MAT 165
 This course is a laboratory for MAT 165. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 167 Discrete Mathematics 3 0 0 3
 Prerequisites: MAT 121, MAT 161, MAT 171 or MAT 280
 Corequisites: MAT 167A
 This course is a study of discrete mathematics with emphasis on applications. Topics include number systems, combinations/permutations, mathematical logic/proofs, sets/counting, Boolean algebra, mathematical induction, trees/graphs, and algorithms. Upon completion, students should be able to demonstrate competence in the topics covered.

MAT 167A Discrete Mathematics Lab 0 2 0 1
 Prerequisites: MAT 121, MAT 161, MAT 171 or MAT 280
 Corequisites: MAT 167
 This course is a laboratory for MAT 167. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 171 Precalculus Algebra 3 0 0 3
 Prerequisites: MAT 095
 Corequisites: MAT 171A
 This is the first of two courses designed to emphasize topics which are fundamental to the study of calculus. Emphasis is placed on equations and inequalities, functions (linear, polynomial, rational), systems of equations and inequalities, and parametric equations. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and predictions.

MAT 171A Precalculus Algebra Lab 0 2 0 1
 Prerequisites: MAT 095
 Corequisites: MAT 171
 This course is a laboratory for MAT 171. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

MAT 172 Precalculus Trigonometry 3 0 0 3
 Prerequisites: MAT 171
 Corequisites: None
 This is the second of two courses designed to emphasize topics which are fundamental to the study of calculus. Emphasis is placed on properties and applications of transcendental functions and their graphs, right and oblique triangle trigonometry, conic sections, vectors, and polar coordinates. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and prediction.

MAT 172A Precalculus Trigonometry Lab 0 2 0 1
 Prerequisites: MAT 171
 Corequisites: MAT 172
 This course is a laboratory for MAT 172. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 175 Precalculus 4 0 0 4
 Prerequisites: None
 Corequisites: None
 This course provides an intense study of the topics which are fundamental to the study of calculus. Emphasis is placed on functions and their graphs with special attention to polynomial, rational, exponential, logarithmic and trigonometric functions, and analytic trigonometry. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and prediction.

MAT 175A Precalculus Lab 0 2 0 1
 Prerequisites: None
 Corequisites: MAT 175
 This course is a laboratory for MAT 175. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 223 Applied Calculus 2 2 0 3
 Prerequisites: MAT 122
 Corequisites: None
 This course provides an introduction to the calculus concepts of differentiation and integration by way of application and is designed for engineering technology students. Topics include limits, slope, derivatives, related rates, areas, integrals, and applications. Upon completion, students should be able to demonstrate an understanding of the use of calculus and technology to solve problems and to analyze and communicate results.

MAT 263 Brief Calculus 3 0 0 3
 Prerequisites: MAT 161
 Corequisites: None
 This course introduces concepts of differentiation and integration and their applications to solving problems; the course is designed for students needing one semester of calculus. Topics include functions, graphing, differentiation, and integration with emphasis on applications drawn from business, economics, and biological and behavioral sciences. Upon completion, students should be able to demonstrate an understanding of the use of basic calculus and technology to solve problems and to analyze and communicate results.

MAT 263A Brief Calculus Lab 0 2 0 1
 Prerequisites: MAT 161
 Corequisites: MAT 263
 This course is a laboratory for MAT 263. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 271 Calculus I 3 2 0 4
 Prerequisites: MAT 172 or MAT 175
 Corequisites: None
 This course covers in depth the differential calculus portion of a three-course calculus sequence. Topics include limits, continuity, derivatives, and integrals of algebraic and transcendental functions of one variable, with applications. Upon completion, students should be able to apply differentiation and integration techniques to algebraic and transcendental functions.

MAT 272 Calculus II 3 2 0 4
 Prerequisites: MAT 271
 Corequisites: None
 This course provides a rigorous treatment of integration and is the second calculus course in a three-course sequence. Topics include applications of definite integrals, techniques of integration, indeterminate forms, improper integrals, infinite series, conic sections, parametric equations, polar coordinates, and differential equations. Upon completion, students should be able to use integration and approximation techniques to solve application problems.

MAT 273 Calculus III 3 2 0 4
 Prerequisites: MAT 272
 Corequisites: None
 This course covers the calculus of several variables and is third calculus course in a three-course sequence. Topics include functions of several variables, partial derivatives, multiple integrals, solid analytical geometry, vector-valued functions, and line and surface integrals. Upon completion, students should be able to solve problems involving vectors and functions of several variables.

MAT 280 Linear Algebra 3 0 0 3
 Prerequisites: MAT 271
 Corequisites: None
 This course provides a study of linear algebra topics with emphasis on the development of both abstract concepts and applications. Topics include vectors, systems of equations, matrices, determinants, vector spaces, linear transformations in two or three dimensions, eigenvectors, eigenvalues, diagonalization and orthogonality. Upon completion, students should be able to demonstrate both an understanding of the theoretical concepts and appropriate use of linear algebra models to solve application problems.

MAT 285 Differential Equations 3 0 0 3
 Prerequisites: MAT 272
 Corequisites: None
 This course provides an introduction to ordinary differential equations with an emphasis on applications. Topics include first-order, linear higher-order, and systems of differential equations; numerical methods; series solutions; eigenvalues and eigenvectors; Laplace transforms; and Fourier series. Upon completion, students should be able to use differential equations to model physical phenomena, solve the equations, and use the solutions to analyze the phenomena.

MEC 110 Introduction to CAD/CAM 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces CAD/CAM. Emphasis is placed on transferring part geometry from CAD to CAM for the development of a CNC-ready program. Upon completion, students should be able to use CAD/CAM software to produce a CNC program.

MEC 111 Machine Processes I 1 4 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces shop safety, hand tools, machine processes, measuring instruments, and the operation of machine shop equipment. Topics include use and care of tools, safety, measuring tools, and the basic setup and operation of common machine tools. Upon completion, students should be able to safely machine simple parts to specified tolerances.

MEC 130 Mechanisms 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the purpose and action of various mechanical devices. Topics include cams, cables, gear trains, differentials, screws, belts, pulleys, shafts, levers, lubricants, and other devices. Upon completion, students should be able to analyze, maintain, and troubleshoot the components of mechanical systems.

MEC 131 Metalworking Processes 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the standard practices that are found in a metal workshop. Topics include the proper care/use of basic hand tools and precision measuring instruments and layout procedures/operation of lathes, drill presses, grinders, milling machines, and power saws. Upon completion, students should be able to work safely in the metal workshop and use basic metalworking equipment.

MEC 141 Introduction to Manufacturing Processes 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the properties and characteristics of manufacturing materials and the processes used to form them. Emphasis is placed on manufacturing materials, heat-treating processes, and manufacturing processes. Upon completion, students should be able to identify physical characteristics of materials and describe processes used to manufacture a part.

MEC 145 Manufacturing Materials I 2 3 0 3
 Prerequisites: None
 This course introduces a variety of manufacturing materials and common processing techniques. Emphasis is placed on the processing, testing, and application of materials such as wood, metals, plastics, ceramics, and composites. Upon completion, students should be able to demonstrate an understanding of fundamental engineering applications for a variety of materials, including their process capabilities and limitations.

MEC 161 Manufacturing Processes I	3	0	0	3
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Prerequisites: None
 Corequisites: MEC 161A
 This course provides the fundamental principles of value-added processing of materials into usable forms for the customer. Topics include material properties and traditional and non-traditional manufacturing processes. Upon completion, students should be able to specify appropriate manufacturing processing for common engineering materials.

MEC 161A Manufacturing Processes I Lab	0	3	0	1
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Prerequisites: None
 Corequisites: MEC 161
 This course is a laboratory for MEC 161. Emphasis is placed on experiences that enhance the materials presented in MEC 161. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in MEC 161.

MEC 180 Engineering Materials	2	3	0	3
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Prerequisites: None
 Corequisites: None
 This course introduces the physical and mechanical properties of materials. Topics include materials testing, pre and post-manufacturing processes, and material selection of ferrous and non-ferrous metals, plastics, composites, and non-conventional materials. Upon completion, students should be able to utilize basic material property tests and select appropriate materials for applications.

MEC 231 Computer-Aided Manufacturing I	1	4	0	3
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Prerequisites: None
 Corequisites: None
 This course introduces computer-aided manufacturing (CAM) applications and concepts. Emphasis is placed on developing/defining part geometry and the processing information needed to manufacture parts. Upon completion, students should be able to demonstrate skills in defining part geometry, program development, and code generation using CAM software.

MEC 251 Statics	2	2	0	3
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Prerequisites: None
 Corequisites: None
 This course covers the concepts and principles of statics. Topics include systems of forces and moments on structures in two- and three-dimensions in equilibrium. Upon completion, students should be able to analyze forces and moments on structures.

MEC 252 Strength of Materials	2	2	0	3
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Prerequisites: MEC 251
 Corequisites: None
 This course covers the principles and concepts of stress analysis. Topics include centroids, moments of inertia, shear/moment diagrams, and stress and strain. Upon completion, students should be able to perform a stress and strain analysis on structural components.

MEC 260 Fundamentals of Machine Design	2	3	0	3
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Prerequisites: MEC 251
 Corequisites: None
 This course introduces the basic elements of machine design. Topics include vectors, moments, friction, velocity, and torque. Upon completion, students should be able to size mechanical components and make component selections from manufacturers' catalogs.

MEC 265 Fluid Mechanics	2	2	0	3
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Prerequisites: None
 Corequisites: None
 This course covers the physical behavior of fluids and fluid systems. Topics include fluid statics and dynamics, laminar and turbulent flow, Bernoulli's Equation, components, applications, and other related topics. Upon completion, students should be able to apply fluid power principles to practical applications.

MEC 267 Thermal Systems	2	2	0	3
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Prerequisites: PHY 131 or PHY 151
 Corequisites: None
 This course introduces the fundamental laws of thermodynamics. Topics include work and energy, open and closed systems, and heat engines. Upon completion, students should be able to demonstrate a knowledge of the laws and principles that apply to thermal power. Special emphasis is also placed on processes of heat transfer: conduction, convection, and radiation.

MEC 276 Mechanical Project Design	0	3	0	1
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Prerequisites: None
 Corequisites: None
 This course provides an opportunity for students to utilize all facets of their educational experience to solve an engineering design problem in a multi-disciplinary environment. Topics include project planning and organization, engineering analysis and design, selection of materials and processes, economic analysis, communication, and project documentation. Upon completion, students should be able to demonstrate the ability to complete a comprehensive design project, concluding with a formal report.

MED 110 Orientation to Medical Assisting	1	0	0	1
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Prerequisites: Enrollment in the Medical Assisting program
 Corequisites: None
 This course covers the history of medicine and the role of the medical assistant in the health care setting. Emphasis is placed on professionalism, communication, attitude, behaviors, and duties in the medical environment. Upon completion, students should be able to project a positive attitude and promote the profession of medical assisting.

MED 113 Orientation to Clinical Setting II	0	0	6	2
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Prerequisites: Department approval based on prior course completion.
 Corequisites: None
 This course provides an opportunity to observe and/or perform in the medical setting. Emphasis is placed on administrative and clinical medical assisting. Upon completion, students should be able to identify administrative and clinical procedures in the health care environment.

MED 114 Professional Interaction in Health Care	1	0	0	1
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Prerequisites: Enrollment in the Medical Assisting program
 Corequisites: None
 This course is designed to identify various patient behaviors encountered in the medical setting. Emphasis is placed on stressors related to illness, cultural influences, death and dying, and needs specific to patients. Upon completion, students should be able to utilize appropriate methods of verbal and nonverbal communication with empathy and impartiality.

MED 118 Medical Law and Ethics 2 0 0 2
 Prerequisites: Enrollment in the Medical Assisting program
 Corequisites: None
 This course covers legal relationships of physicians and patients, contractual agreements, professional liability, malpractice, medical practice acts, informed consent, and bioethical issues. Emphasis is placed on legal terms, professional attitudes, and the principles and basic concepts of ethics and laws involved in providing medical services. Upon completion, students should be able to meet the legal and ethical responsibilities of a multi-skilled health professional.

MED 121 Medical Terminology I 3 0 0 3
 Prerequisites: Enrollment in the Medical Assisting program
 Corequisites: None
 This course introduces prefixes, suffixes, and word roots used in the language of medicine. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders.

MED 122 Medical Terminology II 3 0 0 3
 Prerequisites: Department approval based on prior course completion.
 Corequisites: None
 This course is the second in a series of medical terminology courses. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders.

MED 130 Administrative Office Procedures I 1 2 0 2
 Prerequisites: Enrollment in the Medical Assisting program
 Corequisites: None
 This course introduces medical office administrative procedures. Topics include appointment processing, written and oral communications, medical records, patient orientation, and safety. Upon completion, students should be able to perform basic administrative skills within the medical environment.

MED 131 Administrative Office Procedures II 1 2 0 2
 Prerequisites: Department approval based on prior course completion.
 Corequisites: None
 This course provides medical office procedures in both economic and management skills. Topics include physical plant maintenance, equipment and supplies, liability coverage, medical economics, and introductory insurance procedures. Upon completion, students should be able to manage the economics of the medical office and supervise personnel.

MED 134 Medical Transcription 2 2 0 3
 Prerequisites: MED 121
 Corequisites: MED 122
 This course provides the basic knowledge, understanding, and skills required to complete medical reports and transcribe medical dictation. Emphasis is placed on correct punctuation, capitalization, and spelling. Upon completion, students should be able to demonstrate competence in medical transcription.

MED 140 Examining Room Procedures I 3 4 0 5
 Prerequisites: Department approval based on prior course completion.
 Corequisites: None
 This course provides instruction in clinical examining room procedures. Topics include asepsis, infection control, assisting with exams and treatment, patient education, preparation and administration of medications, EKG, vital signs, and medical emergencies. Upon completion, students should be able to demonstrate competence in exam room procedures.

MED 150 Laboratory Procedures I 3 4 0 5
 Prerequisites: Department approval based on prior course completion.
 Corequisites: None
 This course provides instruction in basic lab techniques used by the medical assistant. Topics include lab safety, quality control, collecting and processing specimens, performing selective tests, phlebotomy, screening and follow-up of test results, and OSHA/CLIA regulations. Upon completion, students should be able to perform basic lab tests/skills based on course topics.

MED 232 Medical Insurance Coding 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course is designed to develop coding skills introduced in MED 131. Emphasis is placed on advanced diagnostic and procedural coding in the outpatient facility. Upon completion, students should be able to demonstrate proficiency in coding for reimbursement.

MED 240 Exam Room Procedures II 3 4 0 5
 Prerequisites: MED 140
 Corequisites: None
 This course is designed to expand and build upon skills presented in MED 140. Emphasis is placed on advanced exam room procedures. Upon completion, students should be able to demonstrate enhanced competence in selected exam room procedures.

MED 260 Medical Clinical Externship 0 0 15 5
 Prerequisites: None
 Corequisites: None
 This course provides the opportunity to apply clinical, laboratory, and administrative skills in a medical facility. Emphasis is placed on enhancing competence in clinical and administrative skills necessary for comprehensive patient care and strengthening professional communications and interactions. Upon completion, students should be able to function as an entry-level health care professional.

MED 262 Clinical Perspectives 1 0 0 1
 Prerequisites: Department approval based on prior course completion.
 Corequisites: None
 This course is designed to explore personal and occupational responsibilities of the practicing medical assistant. Emphasis is placed on problems encountered during externships and development of problem-solving skills. Upon completion, students should be able to demonstrate courteous and diplomatic behavior when solving problems in the medical facility.

MED 264 Medical Assisting Overview	2	0	0	2
Prerequisites: Department approval based on prior course completion.				
Corequisites: None				
This course provides an overview of the complete medical assisting curriculum. Emphasis is placed on all facets of medical assisting pertinent to administrative, laboratory, and clinical procedures performed in the medical environment. Upon completion, students should be able to demonstrate competence in the areas covered on the national certification examination for medical assistants.				
MED 270 Symptomatology	2	2	0	3
Prerequisites: None				
Corequisites: None				
This course covers the study of disease symptoms and the appropriate actions taken by medical assistants in a medical facility in relation to these symptoms. Emphasis is placed on interviewing skills and appropriate triage, preparing patients for procedures, and screening test results. Upon completion, students should be able to recognize how certain symptoms relate to specific diseases, recognize emergency situations, and take appropriate actions.				
MED 272 Drug Therapy	3	0	0	3
Prerequisites: None				
Corequisites: None				
This course focuses on major drug groups, including their side effects, interactions, methods of administration, and proper documentation. Emphasis is placed on the theory of drug administration. Upon completion, students should be able to identify, spell, recognize side effects of, and document the most commonly used medications in a physician's office.				
MKT 120 Principles of Marketing	3	0	0	3
Prerequisites: None				
Corequisites: None				
This course introduces principles and problems of marketing goods and services. Topics include promotion, placement, and pricing strategies for products. Upon completion, students should be able to apply marketing principles in organizational decision making.				
MKT 123 Fundamentals of Selling	3	0	0	3
Prerequisites: None				
Corequisites: None				
This course is designed to emphasize the necessity of selling skills in a modern business environment. Emphasis is placed on sales techniques involved in various types of selling situations. Upon completion, students should be able to demonstrate an understanding of the techniques covered.				
MKT 221 Consumer Behavior	3	0	0	3
Prerequisites: MKT 120				
Corequisites: None				
This course is designed to describe consumer behavior as applied to the exchange processes involved in acquiring, consuming, and disposing of goods and services. Topics include an analysis of basic and environmental determinants of consumer behavior with emphasis on the decision-making process. Upon completion, students should be able to analyze concepts related to the study of the individual consumer.				

MKT 223 Customer Service	3	0	0	3
Prerequisites: None				
Corequisites: None				
This course stresses the importance of customer relations in the business world. Emphasis is placed on learning how to respond to complex customer requirements and to efficiently handle stressful situations. Upon completion, students should be able to demonstrate the ability to handle customer relations.				
MKT 224 International Marketing	3	0	0	3
Prerequisites: None				
Corequisites: None				
This course covers the basic concepts of international marketing activity and theory. Topics include product promotion, placement, and pricing strategies in the international marketing environment. Upon completion, students should be able to demonstrate an understanding of the techniques covered.				
MLT 110 Introduction to MLT	2	3	0	3
Prerequisites: Enrollment in the Medical Laboratory Technology program				
Corequisites: None				
This course introduces all aspects of the medical laboratory profession. Topics include health care/laboratory organization, professional ethics, basic laboratory techniques, safety, quality assurance, and specimen collection. Upon completion, students should be able to demonstrate a basic understanding of laboratory operations and be able to perform basic laboratory skills.				
MLT 111 Urinalysis and Body Fluids	1	3	0	2
Prerequisites: Enrollment in the Medical Laboratory Technology program				
Corequisites: None				
This course introduces the laboratory analysis of urine and body fluids. Topics include physical, chemical, and microscopic examination of the urine and body fluids. Upon completion, students should be able to demonstrate theoretical comprehension in performing and interpreting urinalysis and body fluid tests.				
MLT 115 Laboratory Calculations	2	0	0	2
Prerequisites: Enrollment in the Medical Laboratory Technology program				
Corequisites: None				
This course is designed to present mathematical operations used in the medical laboratory. Topics include use of basic math processes, systems of measurement, conversion factors, solutions, and dilutions. Upon completion, students should be able to solve practical problems in the context of the medical laboratory.				
MLT 118 Medical Lab Chemistry	3	0	0	3
Prerequisites: Enrollment in the Medical Laboratory Technology program				
Corequisites: None				
This course introduces the basic medical laboratory chemical principles. Emphasis is placed on selected topics from inorganic, organic, and biological chemistry. Upon completion, students should be able to demonstrate an understanding of the relationship between basic chemical principles and the medical laboratory function.				

MLT 120 Hematology/Hemostasis I 3 3 0 4
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course introduces the theory and technology used in analyzing blood cells and the study of hemostasis. Topics include hematology, hemostasis, and related laboratory testing. Upon completion, students should be able to demonstrate theoretical comprehension of hematology/ hemostasis, perform diagnostic techniques, and correlate laboratory findings with disorders.

MLT 125 Immunoematology I 4 3 0 5
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course introduces the immune system and response; basic concepts of antigens, antibodies, and their reactions; and applications in transfusion medicine and serodiagnostic testing. Emphasis is placed on immunological and blood banking techniques including concepts of cellular and humoral immunity and pretransfusion testing. Upon completion, students should be able to demonstrate theoretical comprehension in performing and interpreting routine immunological and blood bank procedures.

MLT 130 Clinical Chemistry I 3 3 0 4
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course introduces the quantitative analysis of blood and body fluids and their variations in health and disease. Topics include clinical biochemistry, methodologies, instrumentation, and quality control. Upon completion, students should be able to demonstrate theoretical comprehension of clinical chemistry, perform diagnostic techniques, and correlate laboratory findings with disorders.

MLT 140 Introduction to Microbiology 2 3 0 3
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course introduces basic techniques and safety procedures in clinical microbiology. Emphasis is placed on the morphology and identification of common pathogenic organisms, aseptic technique, staining techniques, and usage of common media. Upon completion, students should be able to demonstrate theoretical comprehension in performing and interpreting basic clinical microbiology procedures.

MLT 217 Professional Issues 0 3 0 1
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course surveys professional issues in preparation for career entry. Emphasis is placed on work readiness and theoretical concepts in microbiology, immunoematology, hematology, and clinical chemistry. Upon completion, students should be able to demonstrate competence in career entry-level areas and be prepared for the national certification examination.

MLT 220 Hematology/Hemostasis II 2 3 0 3
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course covers the theories and techniques used in the advanced analysis of human blood cells and hemostasis. Emphasis is placed on the study of hematologic disorders, abnormal cell development and morphology, and related testing. Upon completion, students should be able to demonstrate a theoretical comprehension and application of abnormal hematology and normal and abnormal hemostasis.

MLT 230 Clinical Chemistry II 2 3 0 3
 Prerequisites: MLT 130
 Corequisites: None
 This course is designed to supplement the biochemical and physiologic theory presented in MLT 130. Emphasis is placed on special chemistry techniques and methodologies. Upon completion, students should be able to recognize and differentiate technical and physiological causes of unexpected test results.

MLT 240 Special Clinical Microbiology 2 3 0 3
 Prerequisites: MLT 140
 Corequisites: None
 This course is designed to introduce special techniques in clinical microbiology. Emphasis is placed on advanced areas in microbiology. Upon completion, students should be able to demonstrate theoretical comprehension in performing and interpreting specialized clinical microbiology procedures.

MLT 254 MLT Practicum I 0 0 12 4
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course provides entry-level clinical laboratory experience. Emphasis is placed on technique, accuracy, and precision. Upon completion, students should be able to demonstrate entry-level competence on final clinical evaluations.

MLT 266 MLT Practicum II 0 0 18 6
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course provides entry-level clinical laboratory experience. Emphasis is placed on technique, accuracy, and precision. Upon completion, students should be able to demonstrate entry-level competence on final clinical evaluations.

MLT 276 MLT Practicum III 0 0 18 6
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course provides entry-level clinical laboratory experience. Emphasis is placed on technique, accuracy, and precision. Upon completion, students should be able to demonstrate entry-level competence on final clinical evaluations.

MLT 280 Special Practice Lab 0 3 0 1
 Prerequisites: Enrollment in the Medical Laboratory Technology program
 Corequisites: None
 This course provides additional medical laboratory experience. Emphasis is placed on laboratory skills and techniques. Upon completion, students should be able to demonstrate proficiency in laboratory skills and techniques.

MNT 110 Introduction to Maintenance Procedures 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course covers basic maintenance fundamentals for power transmission equipment. Topics include equipment inspection, lubrication, alignment, and other scheduled maintenance procedures. Upon completion, students should be able to demonstrate knowledge of accepted maintenance procedures and practices according to current industry standards.

MNT 111 Maintenance Practices 2 2 0 3
 Prerequisites: MNT 110
 Corequisites: None
 This course provides in-depth theory and practical applications relating to predictive and preventive maintenance programs. Emphasis is placed on equipment failure analysis, maintenance management software, and techniques such as vibration and infrared analysis. Upon completion, students should be able to demonstrate an understanding of modern analytical and documentation methods.

MNT 150 Basic Building Maintenance 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the basic skills of building maintenance. Topics include basic carpentry and masonry skills including forming, framing, laying block to a line, repairing, and other related topics. Upon completion, students should be able to perform basic carpentry and masonry skills in a maintenance setting.

MNT 220 Rigging and Moving 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course covers the principles of safe rigging practices for handling, placing, installing, and moving heavy machinery and equipment. Topics include safety; weight and dimension estimation, positioning of equipment slings, rollers, jacks, levers, dollies, ropes, chains, and padding; and other related topics. Upon completion, students should be able to safely relocate and set up equipment using accepted rigging practices.

MNT 230 Pumps and Piping Systems 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course covers pump installation and maintenance and related valves and piping systems. Topics include various types of pump systems and their associated valves, piping requirements, and other related topics. Upon completion, students should be able to select and install pump and piping systems and demonstrate proper maintenance and troubleshooting procedures.

MNT 240 Industrial Equipment Troubleshooting 1 3 0 2
 Prerequisites: ELC 112 or ELC 131
 Corequisites: None
 This course covers the various service procedures, tools, instruments, and equipment necessary to analyze and repair typical industrial equipment. Emphasis is placed on electro-mechanical and fluid power equipment troubleshooting, calibration, and repair, including common techniques and procedures. Upon completion, students should be able to troubleshoot and repair industrial equipment.

MRI 210 MRI Physics and Equipment 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the physical principles of image formation, data acquisition, and image processing in magnetic resonance imaging. Emphasis is placed on instrumentation, fundamentals, pulse sequences, data manipulation, imaging parameters, options, and their effects on image quality. Upon completion, students should be able to understand the principles behind image formation, data acquisition, and image processing in magnetic resonance imaging.

MRI 211 MRI Procedures 4 0 0 4
 Prerequisites: None
 Corequisites: None
 This course covers patient care, magnetic field safety, cross-sectional anatomy, contrast media, and scanning procedures in magnetic resonance imaging. Emphasis is placed on patient assessment and monitoring, safety precautions, contrast agents' use, methods of data acquisition, and identification of cross-sectional anatomy. Upon completion, students should be able to integrate all facets of imaging procedures in magnetic resonance imaging.

MRI 225 MRI Clinical Practicum 0 0 15 5
 Prerequisites: None
 Corequisites: None
 This course provides experience in the computed tomography clinical setting. Emphasis is placed on patient care and positioning, scanning procedures, and image production in magnetic resonance imaging. Upon completion, students should be able to assume a variety of duties and responsibilities within the magnetic resonance clinical environment.

MRI 231 MRI Clinical Practicum 0 0 33 11
 Prerequisites: None
 Corequisites: None
 This course provides experience in the computed tomography clinical setting. Emphasis is placed on patient care and positioning, scanning procedures, and image production in magnetic resonance imaging. Upon completion, students should be able to assume a variety of duties and responsibilities within the magnetic resonance clinical environment.

MTH 110 Fundamentals of Massage 6 12 0 10
 Prerequisites: None
 Corequisites: BIO 163
 This course introduces concepts basic to the role of the massage therapist. Emphasis is placed on beginning theory and techniques of body work as well as skill in therapeutic touch. Upon completion of the course, the student should be able to apply basic practical massage therapy skills.

MTH 120 Therapeutic Massage Applications 6 12 0 10
 Prerequisites: MTH 110
 Corequisites: None
 This course provides an expanded knowledge and skill base for the massage therapist. Emphasis is placed on selected therapeutic approaches throughout the lifespan. Upon completion, students should be able to perform entry level therapeutic massage on various populations.

MTH 125 Ethics of Massage 2 0 0 2
 Prerequisites: MTH 120
 Corequisites: None
 This course is designed to explore issues related to the practice of massage therapy. Emphasis is placed on ethical, legal, professional, and political issues. Upon completion, students should be able to discuss issues relating to the practice of massage therapy, client/therapist relationships as well as ethical issues.

MUS 110 Music Appreciation 3 0 0 3
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course is a basic survey of the music of the Western world. Emphasis is placed on the elements of music, terminology, composers, form, and style within a historical perspective. Upon completion, students should be able to demonstrate skills in basic listening and understanding of the art of music. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. This course is also available through the Virtual Learning Community (VLC).*

MUS 111 Fundamentals of Music 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course is an introductory course for students with little or no music background. Emphasis is placed on music notation, rhythmic patterns, scales, key signatures, intervals, and chords. Upon completion, students should be able to demonstrate an understanding of the rudiments of music.

MUS 112 Introduction to Jazz 3 0 0 3
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course introduces the origins and musical components of jazz and the contributions of its major artists. Emphasis is placed on the development of discriminating listening habits, as well as the investigation of the styles and structural forms of the jazz idiom. Upon completion, students should be able to demonstrate skills in listening and understanding this form of American music. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

MUS 113 American Music 3 0 0 3
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course introduces various musical styles, influences, and composers of the United States from pre-Colonial times to the present. Emphasis is placed on the broad variety of music particular to American culture. Upon completion, students should be able to demonstrate skills in basic listening and understanding of American music. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

MUS 114 Non-Western Music 3 0 0 3
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course provides a basic survey of the music of the non-Western world. Emphasis is placed on non-traditional instruments, sources, and performing practices. Upon completion, students should be able to demonstrate skills in basic listening and understanding of the art of non-Western music. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

MUS 131 Chorus I 0 2 0 1
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to gain experience singing in a chorus. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.

MUS 132 Chorus II 0 2 0 1
 Prerequisites: MUS 131
 Corequisites: None
 This course provides a continuation of studies begun in MUS 131. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.

MUS 141 Ensemble I 0 0 2 1
 Prerequisites: Audition
 Corequisites: None
 This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

MUS 142 Ensemble II 0 2 0 1
 Prerequisites: MUS 141
 Corequisites: None
 This course is a continuation of MUS 141. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.

MUS 151 Class Music I 0 2 0 1
 Prerequisites: None
 Corequisites: None
 This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. *Colleges may use a letter suffix to designate a specific instrument or voice, for example MUS 151P for piano. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

MUS 161 Applied Music I 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course provides individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

MUS 210 History of Rock Music 3 0 0 3
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course is a survey of Rock music from the early 1950's to the present. Emphasis is placed on musical groups, soloists, and styles related to the evolution of this idiom and on related historical and social events. Upon completion, students should be able to identify specific styles and to explain the influence of selected performers within their respective eras.

MUS 212 American Musical Theatre 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the origins and development of the musical from *Show Boat* to the present. Emphasis is placed on the investigation of the structure of the musical and its components through listening and analysis. Upon completion, students should be able to demonstrate skills in listening and understanding this form of American music. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/ fine arts.*

MUS 213 Opera and Musical Theatre 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the origins and development of opera and musical theatre from the works of Claudio Monteverdi to the present. Emphasis is placed on how the structure and components of opera and musicals effect dramaturgy through listening examples and analysis. Upon completion, students should be able to demonstrate analytical and listening skills in understanding both opera and the musical. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/ fine arts.*

MUS 214 Electronic Music I 1 2 0 2
 Prerequisites: MUS 111
 Corequisites: None
 This course provides an opportunity to study and explore various electronic instruments and devices. Emphasis is placed on fundamental MIDI applications and implementation, features and application of sequences, sound modules, and digital keyboards. Upon completion, students should be able to demonstrate proficiency by creation of appropriate musical projects using the equipment and techniques covered. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

MUS 231 Chorus III 0 2 0 1
 Prerequisites: MUS 132
 Corequisites: None
 This course is a continuation of MUS 132. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.

MUS 232 Chorus IV 0 2 0 1
 Prerequisites: MUS 231
 Corequisites: None
 This course is a continuation of MUS 231. Emphasis is placed on vocal techniques and the study of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.

MUS 241 Ensemble III 0 2 0 1
 Prerequisites: MUS 142
 Corequisites: None
 This course is a continuation of MUS 142. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

MUS 242 Ensemble IV 0 2 0 1
 Prerequisites: MUS 241
 Corequisites: None
 This course is a continuation of MUS 241. Emphasis is placed on the development of performance skills and the study of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

N

NAS 101 Nursing Assistant I 3 2 3 5
 Prerequisites: None
 Corequisites: NAS 103
 This course introduces basic nursing skills required to provide personal care for patients, residents, or clients in a health care setting. Topics include communications, safety, patients' rights, personal care, vital signs, elimination, nutrition, emergencies, rehabilitation, and mental health. Upon completion, students should be able to demonstrate skills necessary to qualify as a Nursing Assistant I with the North Carolina Nurse Aide I Registry.

NAS 102 Nursing Assistant II 3 2 6 6
 Prerequisites: High school diploma or GED and currently listed as NA I with State of North Carolina
 Corequisites: None
 This course provides training in selected advanced nursing assistant procedures. Emphasis is placed on sterile techniques, respiratory procedures, catheterizations, wound and trach care, irrigations, and ostomy care. Upon completion, students should be able to demonstrate skills necessary to qualify as a Nursing Assistant II with the North Carolina Board of Nursing.

NAS 103 Home Health Care 2 0 0 2
 Prerequisites: High school diploma or GED
 Corequisites: NAS 101
 This course covers basic health issues that affect clients in the home setting. Emphasis is placed on home safety, recognizing significant changes in the client's condition, family dynamics, and use of home health care equipment. Upon completion, students should be able to identify care for clients at home.

NET 110	Data Communications/ Networking	2	2	0	3
Prerequisites: RED 090 Corequisites: None This course introduces data communication and networking. Topics include telecommunication standards, protocols, equipment, network topologies, communication software, LANs, WANs, the Internet, and network operating systems. Upon completion, students should be able to demonstrate understanding of the fundamentals of telecommunication and networking.					
NET 112	See SEC 110.				
NET 125	Networking Basics	1	4	0	3
Prerequisites: None Corequisites: None This course introduces the networking field. Emphasis is placed on network terminology and protocols, local-area networks, wide-area networks, OSI model, cabling, router programming, Ethernet, IP addressing, and network standards. Upon completion, students should be able to perform tasks related to networking mathematics, terminology, and models, media, Ethernet, subnetting, and TCP/IP Protocols.					
NET 126	Routing Basics	1	4	0	3
Prerequisites: NET 125 Corequisites: None This course focuses on initial router configuration, router software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Emphasis will be placed on the fundamentals of router configuration, managing router software, routing protocol, and access lists. Upon completion, students should have an understanding of routers and their role in WANs, router configuration, routing protocols, TCP/IP, troubleshooting, and ACLs.					
NET 145	See NOS 120.				
NET 155	See NOS 220.				
NET 165	See NOS 221.				
NET 175	Wireless Technology	2	2	0	3
Prerequisites: NET 110 Corequisites: None This course introduces the student to wireless technology and interoperability with different communication protocols. Topics include Wireless Application Protocol (WAP), Wireless Markup language (WML), link manager, service discovery protocol, transport layer and frequency band. Upon completion, students should be able to discuss in written and oral form protocols and procedures required for different wireless applications.					
NET 191	Selected Topics in Networking Technology	-	-	-	1
Prerequisites: NET 125 Corequisites: None This course provides an opportunity to explore areas of current interest in Networking Technology. Emphasis is placed on subject matter appropriate to networking. Upon completion, students should be able to demonstrate an understanding of the specific area of study.					

NET 193	Selected Topics in Networking Technology	-	-	-	3
Prerequisites: NET 125 or NET 165 Corequisites: None This course provides an opportunity to explore areas of current interest in Networking Technology. Emphasis is placed on subject matter appropriate to networking. Upon completion, students should be able to demonstrate an understanding of the specific area of study.					
NET 196	Seminar in Networking Technology: MCSE Upgrading	-	-	-	1
Prerequisites: NET 125 Corequisites: None This course provides an opportunity to explore areas of current interest in Networking Technology. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.					
NET 197	Seminar in Networking Technology: MCSE Security	-	-	-	2
Prerequisites: NET 125 Corequisites: None This course provides an opportunity to explore areas of current interest in Networking Technology. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.					
NET 198	Seminar in Networking Technology	-	-	-	3
Prerequisites: NET 125 Corequisites: None This course provides an opportunity to explore areas of current interest in Networking Technology. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.					
NET 222	See SEC 160.				
NET 225	Advanced Router and Switching I	1	4	0	3
Prerequisites: NET 126 Corequisites: None This course introduces advanced router configurations, advanced LAN switching theory and design, VLANs, Novell IPX, and threaded case studies. Topics include router elements and operations, adding routing protocols to a configuration, monitoring IPX operations on the router, LAN segmentation, and advanced switching methods. Upon completion students should be able to describe LAN and network segmentation with bridges, routers, and switches and describe a virtual LAN.					
NET 230	Wide Area Networking	2	2	0	3
Prerequisites: NET 110 Corequisites: None This course is designed to introduce significant aspects of network interconnectivity. Topics include LAN-to-LAN, LAN-to-host, LAN-to-WAN connectivity; Internet connections; and voice-video-data transmission. Upon completion, students should be able to demonstrate an understanding of wide area networking.					

NET 231	Intrusion Detection	3	0	0	3
Prerequisites: NET 222					
Corequisites: None					
This course introduces the student to intrusion detection methods in use today. Topics include the types of intrusion detection products and planning and placements of intrusion detection solutions. Upon completion, students should be able to plan and implement intrusion detection solution for networks and host based systems.					
NET 232	Security Administration II	2	2	0	3
Prerequisites: NET 222					
Corequisites: None					
This course provides the skills necessary to design and implement information security controls. Topics include advanced TCP/IP concepts, network vulnerability analysis, and monitoring. Upon completion, students should be able to distinguish between normal anomalous network traffic, identify common network attack patterns, and implement security solutions.					
NET 240	Network Design	3	0	0	3
Prerequisites: NET 110					
Corequisites: None					
This course covers the principles of the design of LANs and WANs. Topics include network architecture, transmission systems, traffic management, bandwidth requirements, Internet working devices, redundancy, and broad-band versus base-band systems. Upon completion, students should be able to design a network to meet specified business and technical requirements.					
NET 250	Advanced Networks I	2	2	0	3
Prerequisites: NET 110					
Corequisites: None					
This course covers advanced network management, security, and server issues. Topics include server types (file, database, fax, communication, FTP, e-mail, CD-ROM), encryption, authentication, remote monitoring, viruses, and disaster recovery. Upon completion, students should be able to perform advanced monitoring and management of various types of servers and networks.					
NET 251	Advanced Networks II	2	2	0	3
Prerequisites: NET 250					
Corequisites: None					
This course is a continuation of NET 250. Topics include further discussion of network management, monitoring and security, as well as additional work with various types of servers. Upon completion, students should be able to detect and resolve problems relating to network security, performance, and recovery on various types of servers.					
NET 260	Internet Development and Support	3	0	0	3
Prerequisites: NET 110					
Corequisites: None					
This course covers issues relating to the development and implementation of Internet related tools and services. Topics include Internet organization, site registration, e-mail servers, Web servers, Web page development, legal issues, firewalls, multimedia, TCP/IP, service providers, FTP, list servers, and gateways. Upon completion, students should be able to develop and support the Internet services needed within an organization.					

NET 270	Scalable Networks Design	1	4	0	3
Prerequisites: None					
Corequisites: None					
This course covers principles and techniques of scalable networks. Topics include building multi-layer networks, controlling overhead traffic in growing routed networks, and router capabilities used to control traffic over LANs and WANs. Upon completion, students should be able to design; implement; and improve traffic flow, reliability, redundancy, and performance in enterprise networks.					
NET 271	Multi-Layer Networks	1	4	0	3
Prerequisites: NET 270					
Corequisites: None					
This course covers building campus networks using multi-layer switching technologies over a high-speed Ethernet. Topics include improving IP routing performance with multi-layer switching, implementing fault tolerance routing, and managing high bandwidth broadcast while controlling IP multi-cast access to networks. Upon completion, students should be able to install and configure multi-layer enterprise networks and determine the required router configurations to support new services and applications.					
NET 272	Remote Access Networks	1	4	0	3
Prerequisites: NET 271					
Corequisites: None					
This course covers how to build a remote access network to interconnect central sites to branch offices, home offices, and telecommuters. Topics include enabling on-demand/ permanent connections to the central site, scaling and troubleshooting remote access networks, and maximizing bandwidth utilization over remote links. Upon completion, students should be able to assemble and configure equipment, establish WAN connections, enable protocols/ technologies, allow traffic between sites, and implement accessible access control.					
NET 273	Internetworking Support	1	4	0	3
Prerequisites: NET 272					
Corequisites: None					
This course covers how to baseline and troubleshoot in an internetworking environment using routers and switches for multi-protocol client, host and servers. Topics include troubleshooting processes, routing and routed protocols, campus switching; and WAN troubleshooting. Upon completion, students should be able to troubleshoot Ethernet, Fast Ethernet, and Token Ring LANs; and Serial, Frame Relay, and ISDN connections.					
NET 280	Networking Project	1	4	0	3
Prerequisites: ENG 111, ENG 114, NET 110					
Corequisites: None					
This course provides an opportunity to complete a significant networking project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, documentation, installation, testing, presentation, and training. Upon completion, students should be able to complete a project from the definition phase through implementation.					
NET 286	Current Trends in Sec Sys	2	2	0	3
Prerequisites: SEC 260 and NOS 220					
Corequisites: None					
This course introduces topics of current interest in the security industry. Emphasis is placed on evolving technology and trends in security systems. Upon completion, students should be able to critically analyze security issues and topics, establish and deliver informed opinions.					

NET 289 Networking Project 1 4 0 3
 Prerequisites: None
 Corequisites: NET 226
 This course provides an opportunity to complete a significant networking project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, documentation, installation, testing, presentation, and training. Upon completion, students should be able to complete a project from the definition phase through implementation.

NET 291 Selected Topics in Networking Technology - - - 1
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Networking Technology. Emphasis is placed on subject matter appropriate to networking. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

NET 292 Selected Topics in Networking Technology - - - 2
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Networking Technology. Emphasis is placed on subject matter appropriate to networking. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

NET 293 Selected Topics in Networking Technology - - - 3
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Networking Technology. Emphasis is placed on subject matter appropriate to networking. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

NOS 110 Operating System Concepts 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces students to a broad range of operating system concepts, including installation and maintenance. Emphasis is placed on operating system concepts, management, maintenance, and resources required. Upon completion of this course, students will have an understanding of OS concepts, installation, management, maintenance, using a variety of operating systems.

NOS 111 Operating System – DOS 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces operating system concepts for DOS operating systems. Topics include hardware management, file and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating system functions at the support level in a DOS environment.

NOS 120 Linux/UNIX Single User 2 2 0 3
 Prerequisites: NOS 110
 Corequisites: None
 This course develops the necessary skills for students to develop both GUI and command line skills for using and customizing a Linux workstation. Topics include Linux file system and access permissions, GNOME Interface, VI editor, X Window System expression pattern matching, I/O redirection, network and printing utilities. Upon completion, students should be able to customize and use Linux systems for command line requirements and desktop productivity roles.

NOS 220 Linux/UNIX Admin I 2 2 0 3
 Prerequisites: NOS 120
 Corequisites: None
 This course introduces the Linux file system, group administration, and system hardware controls. Topics include installation, creation and maintaining file systems, NIS client and DHCP client configuration, NFS, SMB/Samba, Configure X, Gnome, KDE, basic memory, processes, and security. Upon completion, students should be able to perform system administration tasks including installation, configuring and attaching a new Linux workstation to an existing network.

NOS 221 Linux/UNIX Admin II 2 2 0 3
 Prerequisites: NOS 220
 Corequisites: None
 This course includes skill-building in configuring common network services and security administration using Linux. Topics include server-side setup, configuration, basic administration of common networking services, and security administration using Linux. Upon completion, students should be able to setup a Linux server and configure common network services including security requirements.

NOS 222 Linux/UNIX Admin III 2 2 0 3
 Prerequisites: NOS 221
 Corequisites: None
 This course includes technical topics in preparing an enterprise Linux system for common uses. Topics include advanced study of hardware, installation, boot process, file system administration, software administration, user administration, system administration, kernel services, configuration, securing services, and troubleshooting. Upon completion, students should be able to administer an enterprise Linux system.

NOS 230 Windows Admin I 2 2 0 3
 Prerequisites: NOS 130
 Corequisites: None
 This course covers the installation and administration of a Windows Server network operating system. Topics include managing and maintaining physical and logical devices, access to resources, the server environment, managing users, computers, and groups, and Managing/Implementing Disaster Recovery. Upon completion, students should be able to manage and maintain a Windows Server environment.

NOS 231 Windows Admin II 2 2 0 3
 Prerequisites: NOS 230
 Corequisites: None
 This course covers implementing, managing, and maintaining a Windows Server network infrastructure. Topics include implementing, managing, and maintaining IP addressing, name resolution, network security, routing and remote access, and managing a network infrastructure. Upon completion, students should be able to manage and maintain a Windows Server environment.

NOS 232 Windows Admin III 2 2 0 3

Prerequisites: NOS 231

Corequisites: None

This course covers implementing and administering security in a Windows Server network. Topics include implementing, managing, and trouble shooting security policies, patch management infrastructure, security for network communications, authentication, authorization, and PKI. Upon completion, students should be able to implement, manage, and maintain a Windows Server network infrastructure.

NUR 115 Fundamentals of Nursing 2 3 6 5

Prerequisites: None

Corequisites: None

This course introduces concepts basic to beginning nursing practice. Emphasis is placed on the application of the nursing process to provide and manage care as a member of the discipline of nursing. Upon completion, students should be able to demonstrate beginning competence in caring for individuals with common alterations of health.

NUR 116 Nursing of Older Adults 2 3 3 4

Prerequisites: NUR 115

Corequisites: None

This course provides an opportunity to utilize the provider of care and manager of care roles to meet nursing needs of older adults in a variety of settings. Emphasis is placed on the aging process as it applies to normal developmental changes and alterations in health commonly occurring in the older adult. Upon completion, students should be able to apply the nursing process in caring for the older adult.

NUR 117 Pharmacology 1 3 0 2

Prerequisites: None

Corequisites: NUR 133

This course introduces information concerning sources, effects, legalities, and the safe use of medications as therapeutic agents. Emphasis is placed on nursing responsibility, accountability, pharmacokinetics, routes of medication administration, contraindications and side effects. Upon completion, students should be able to compute dosages and administer medication safely.

NUR 125 Maternal-Child Nursing 5 3 6 8

Prerequisites: NUR 115

Corequisites: None

This course introduces nursing concepts related to the delivery of nursing care for the expanding family. Emphasis is placed on utilizing the nursing process as a framework for managing/providing nursing care to individuals and families along the wellness-illness continuum. Upon completion, students should be able to utilize the nursing process to deliver nursing care to mothers, infants, children, and families.

NUR 133 Nursing Assessment 2 3 0 3

Prerequisites: None

Corequisites: NUR 117

This course provides theory and application experience for performing nursing assessment of individuals. Emphasis is placed on interviewing and physical assessment techniques and documentation of findings appropriate for nursing. Upon completion, students should be able to complete a health history and perform a noninvasive physical assessment.

NUR 135 Adult Nursing I 5 3 9 9

Prerequisites: NUR 115

Corequisites: None

This course introduces concepts related to the nursing care of individuals experiencing acute and chronic alterations in health. Emphasis is placed on utilizing the nursing process as a framework for providing and managing nursing care to individuals along the wellness-illness continuum. Upon completion, students should be able to apply the nursing process to individuals experiencing acute and chronic alterations in health.

NUR 185 Mental Health Nursing 3 0 6 5

Prerequisites: NUR 115

Corequisites: None

This course includes concepts related to the nursing care of individuals experiencing alterations in social and psychological functioning. Emphasis is placed on utilizing the nursing process to provide and manage nursing care for individuals with common psychiatric disorders or mental health needs. Upon completion, students should be able to apply psychosocial theories in the nursing care of individuals with psychiatric/mental health needs.

NUR 235 Adult Nursing II 4 3 15 10

Prerequisites: NUR 135

Corequisites: None

This course provides expanded concepts related to nursing care for individuals experiencing common complex alterations in health. Emphasis is placed on the nurse's role as a member of a multidisciplinary team and as a manager of care for a group of individuals. Upon completion, students should be able to provide comprehensive nursing care for groups of individuals with common complex alterations in health.



OSS 120 Introduction to AIX 2 2 0 3

Prerequisites: None

Corequisites: None

This course introduces students to customizing and handling common AIX system administrator tasks in a multi-user environment. Topics include installation, system management tools, print queues, device drivers, file systems security, user administration, and scheduling techniques. Upon completion, students should be able to install AIX systems, manage file systems and group accounts, configure devices and implement customized access and security tasks.

OSS 160 AIX Systems Administration I 2 2 0 3

Prerequisites: OSS 120

Corequisites: None

This course introduces students to customizing and handling common AIX system administrator tasks in a multi-user environment. Topics include installation, system management tools, print queues, device drivers, file systems security, user administration, and scheduling techniques. Upon completion, students should be able to install AIX systems, manage file systems and group accounts, configure devices and implement customized access and security tasks.

OSS 220 AIX Systems Administration II	2	2	0	3
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Prerequisites: OSS 160
Corequisites: None
This course introduces students to the administrator skills to develop and build advanced AIX. Topics include AIX boot sequence, disk management theory and procedures, diagnostics tools, error log, volume group techniques, dump facilities, online file system backups and security. Upon completion, students should be able to perform system problem determination procedures, recovery techniques, understand disk management theory and configure auditing in an AIX environment.

OST 080 Keyboarding Literacy	1	2	0	2
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Prerequisites: None
Corequisites: None
This course is designed to develop elementary keyboarding skills. Emphasis is placed on mastery of the keyboard. Upon completion, students should be able to demonstrate basic proficiency in keyboarding.

OST 122 Office Computations	1	2	0	2
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Prerequisites: MAT 060 or equivalent
Corequisites: None
This course introduces the keypad and the touch method using the electronic calculator. Topics include mathematical functions in business applications. Upon completion, students should be able to use the electronic calculator to solve a wide variety of problems commonly encountered in business.

OST 131 Keyboarding	1	2	0	2
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Prerequisites: None
Corequisites: None
This course covers basic keyboarding skills. Emphasis is placed on the touch system, correct techniques, and development of speed and accuracy. Upon completion, students should be able to key at an acceptable speed and accuracy level using the touch system. Business letters, centering, and one-page reports are included.

OST 132 Keyboard Skill Building	1	2	0	2
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Prerequisites: OST 080 or equivalent
Corequisites: None
This course provides accuracy- and speed-building drills. Emphasis is placed on diagnostic tests to identify accuracy and speed deficiencies followed by corrective drills. Upon completion, students should be able to keyboard rhythmically with greater accuracy and speed.

OST 134 Text Entry and Formatting	2	2	0	3
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Prerequisites: OST 080 or equivalent
Corequisites: None
This course is designed to provide the skills needed to increase speed, improve accuracy, and format documents. Topics include letters, memos, tables, and business reports. Upon completion, students should be able to produce mailable documents and key-timed writings at speeds commensurate with employability.

OST 135 Advanced Text Entry and Formatting	3	2	0	4
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Prerequisites: OST 134
Corequisites: None
This course is designed to incorporate computer application skills in the generation of office documents. Emphasis is placed on the production of letters, manuscripts, business forms, tabulation, legal documents, and newsletters. Upon completion, students should be able to make independent decisions regarding planning, style, and method of presentation.

OST 136 Word Processing	1	2	0	2
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Prerequisites: OST 080 or equivalent
Corequisites: None
This course introduces word processing concepts and applications. Topics include preparation of a variety of documents and mastery of specialized software functions. Upon completion, students should be able to work effectively in a computerized word processing environment.

OST 137 Office Software Applications	1	2	0	2
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Prerequisites: None
Corequisites: None
This course introduces the concepts and functions of software that meets the changing needs of the community. Emphasis is placed on the terminology and use of software through a hands on approach. Upon completion, students should be able to use software in a business environment.

OST 141 Medical Terms I- Medical Office	3	0	0	3
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Prerequisites: None
Corequisites: None
This course uses a language-structure approach to present the terminology and vocabulary that will be encountered in medical office settings. Topics include word parts that relate to systemic components, conditions, pathology, and disorder remediation in approximately one-half of the systems of the human body. Upon completion, students should be able to relate words to systems, pluralize, define, pronounce, and construct sentences with the included terms.

OST 142 Medical Terms II- Medical Office	3	0	0	3
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Prerequisites: OST 141
Corequisites: None
This course is a continuation of OST 141 and continues the study, using a language-structure approach, of medical office terminology and vocabulary. Topics include word parts that relate to systemic components, conditions, pathology, and disorder remediation in the remaining systems of the human body. Upon completion, students should be able to relate words to systems, pluralize, define, pronounce, and construct sentences with the included terms.

OST 148 Medical Coding, Billing, and Insurance	3	0	0	3
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Prerequisites: ,None
Corequisites: OST 141
This course introduces CPT and ICD coding as they apply to medical insurance and billing. Emphasis is placed on accuracy in coding, forms preparation, and posting. Upon completion, students should be able to describe the steps of the total billing cycle and explain the importance of accuracy.

OST 149 Medical Legal Issues	3	0	0	3
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Prerequisites: None
Corequisites: None
This course introduces the complex legal, moral, and ethical issues involved in providing health-care services. Emphasis is placed on the legal requirements of medical practices; the relationship of physician, patient, and office personnel; professional liabilities; and medical practice liability. Upon completion, students should be able to demonstrate a working knowledge of current medical law and accepted ethical behavior.

OST 155 Legal Terminology 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course covers the terminology appropriate to the legal profession. Topics include legal research, court systems, litigation, civil and criminal law, probate, real and personal property, contracts and leases, domestic relations, equity, and corporations. Upon completion, students should be able to spell, pronounce, define, and demonstrate an understanding of the use of these legal terms.

OST 156 Legal Office Procedures 2 2 0 3
 Prerequisites: OST 134, OST 155
 Corequisites: None
 This course covers legal office functions involved in the operation of a law office. Emphasis is placed on procedures in the law office involving the court system, legal research, litigation, probate, and real estate, personal injury, criminal, and civil law. Upon completion, students should be able to demonstrate a high level of competence in performing legal office duties. This course focuses on document preparation for legal documents and pleadings in many different fields of law. *This course is a unique requirement of the Legal Office Systems concentration in the Office Systems Technology program.*

OST 164 Text Editing Applications 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides a comprehensive study of editing skills needed in the workplace. Emphasis is placed on grammar, punctuation, sentence structure, proofreading, and editing. Upon completion, students should be able to use reference materials to compose and edit text.

OST 181 Introduction to Office Systems 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the skills and abilities needed in today's office. Topics include effectively interacting with co-workers and the public, processing simple financial and informational documents, and performing functions typical of today's offices. Upon completion, students should be able to display skills and decision-making abilities essential for functioning in the total office context.

OST 184 Records Management 1 2 0 2
 Prerequisites: None
 Corequisites: None
 This course includes the creation, maintenance, protection, security, and disposition of records stored in a variety of media forms. Topics include alphabetic, geographic, subject, and numeric filing methods. Upon completion, students should be able to set up and maintain a records management system.

OST 198 Seminar in Office Systems Technology: Office Systems Management 1 2 0 2
 Prerequisites: OST 141, OST 148
 Corequisites: OST 142
 This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions. Specifically, this course will use one or more patient management systems to enter, edit, and delete physician schedules and patient demographic, insurance, and billing information; as well as create and analyze various reports to aid in the management of a healthcare practice.

OST 233 Office Publications Design 2 2 0 3
 Prerequisites: OST 136
 Corequisites: None
 This course provides entry-level skills in using software with desktop publishing capabilities. Topics include principles of page layout, desktop publishing terminology and applications, and legal and ethical considerations of software use. Upon completion, students should be able to design and produce professional business documents and publications.

OST 236 Advanced Word/Information Processing 2 2 0 3
 Prerequisites: OST 135 or OST 136
 Corequisites: None
 This course develops proficiency in the utilization of advanced word/information processing functions. Topics include tables, graphics, macros, sorting, document assembly, merging, and newspaper and brochure columns. Upon completion, students should be able to produce a variety of complex business documents.

OST 241 Medical Office Transcription I 1 2 0 2
 Prerequisites: MED 121 or OST 141; OST 134 and OST 164
 Corequisites: OST 142 or MED 122
 This course introduces machine transcription techniques as applied to medical documents. Emphasis is placed on accurate transcription, proofreading, and use of reference materials as well as vocabulary building. Upon completion, students should be able to prepare accurate and usable transcripts of voice recordings in the covered specialties. This course is a unique requirement in the Medical Office Administration program

OST 243 Medical Office Simulation 2 2 0 3
 Prerequisites: CIS 120, CIS 169, OST 148, OST 241
 Corequisites: OST 149
 This course introduces medical systems used to process information in the automated office. Topics include traditional and electronic information resources, storing and retrieving information, and the billing cycle. Upon completion, students should be able to use the computer accurately to schedule, bill, update, and make corrections. This course is a unique concentration requirement in the Medical Office Administration program.

OST 252 Legal Transcription I 2 2 0 3
 Prerequisites: OST 134 or OST 136;
 CIS 164 and OST 155

Corequisites: None

This course provides experience in using the transcriber to produce legal correspondence, forms, and documents with mailable accuracy from recorded tapes. Emphasis is placed on operating the transcriber, developing listening skills to translate the audio into hard copy, and producing mailable documents. Upon completion, students should be able to transcribe legal forms and documents with reasonable accuracy. This course is a unique concentration requirement in the Legal Office Systems Technology concentration in the Office Systems Technology program.

OST 284 Emerging Technologies 1 2 0 2
 Prerequisites: CIS 111, OST 137

Corequisites: None

This course provides opportunities to explore emerging technologies. Emphasis is placed on identifying, researching, and presenting current technological topics for class consideration and discussion. Upon completion, students should be able to understand the importance of keeping abreast of technological changes that affect the office professional.

OST 286 Professional Development 3 0 0 3

Prerequisites: OST 136, OST 164

Corequisites: None

This course covers the personal competencies and qualities needed to project a professional image in the office. Topics include interpersonal skills, health lifestyles, appearance, attitude, personal and professional growth, multicultural awareness, and professional etiquette. Upon completion, students should be able to demonstrate these attributes in the classroom, office, and society.

OST 289 Office Systems Management 2 2 0 3

Prerequisites: OST 134 or OST 136;
 CIS 120, CIS 169, OST 164,

Corequisites: None

This course provides a capstone course for the office professional. Topics include administrative office procedures, imaging, communication techniques, ergonomics, and equipment utilization. Upon completion, students should be able to function proficiently in a changing office environment.

OST 298 Seminar in Office Systems Technology Financial Software 2 2 0 3

Prerequisites: CIS 111

Corequisites: None

This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions. Specifically, this course will introduce basic accounting software as used by administrative assistants, including entering data in accounts payable and receivable, petty cash, inventory, bank statement reconciliation, and payroll; and generating simple reports.

P

PBT 100 Phlebotomy Technology 5 2 0 6
 Prerequisites: Enrollment in the Phlebotomy
 Technology program

Corequisites: PBT 101

This course provides instruction in the skills needed for the proper collection of blood and other specimens used for diagnostic testing. Emphasis is placed on ethics, legalities, medical terminology, safety and universal precautions, health care delivery systems, patient relations, anatomy and physiology, and specimen collection. Upon completion, students should be able to demonstrate competence in the theoretical comprehension of phlebotomy techniques.

PBT 101 Phlebotomy Practicum 0 0 9 3
 Prerequisites: Enrollment in the Phlebotomy
 Technology program

Corequisites: PBT 100

This course provides supervised experience in the performance of venipuncture and microcollection techniques in a clinical facility. Emphasis is placed on patient interaction and application of universal precautions, proper collection techniques, special procedures, specimen handling, and data management. Upon completion, students should be able to safely perform procedures necessary for specimen collections on patients in various health care settings.

PCI 161 Introduction to Instrumentation 0 2 0 1

Prerequisites: None

Corequisites: None

This course introduces various industrial and manufacturing process control environments by taking field trips to related industrial facilities. Topics include job descriptions, titles, and opportunities associated with the field of industrial process control instrumentation. Upon completion, students should be able to demonstrate an understanding of the job opportunities available in the field of process control instrumentation.

PCI 261 Process Measurement 2 3 0 3
 Prerequisites: None

Corequisites: None

This course introduces the concepts associated with the measurement of different process variables. Topics include theory and applications involved with the process variables of flow, level, pressure, and temperature. Upon completion, students should be able to understand basic process measurements and demonstrate the ability to calibrate process control instrumentation.

PCI 262 Introduction to Process Control 3 3 0 4

Prerequisites: ELC 131

Corequisites: None

This course introduces process control and related instrumentation devices. Topics include basic process control theory, PID diagrams, and calibration methods associated with transducers, transmitters, control valves, and related process devices. Upon completion, students should be able to understand and troubleshoot basic process control devices and systems.

PCI 263 Advanced Process Control	3	3	0	4
Prerequisites: PCI 262 Corequisites: None This course covers advanced process control and instrumentation associated with closed and open loop-type process control and systems. Topics include analysis of cascade, distributed control, feedback, and feedforward process control systems using PID and advanced control applications. Upon completion, students should be able to understand and implement advanced process control and instrumentation systems.				
PED 110 Fitness and Wellness for Life	1	2	0	2
Prerequisites: None Corequisites: None This course is designed to investigate and apply the basic concepts and principles of lifetime physical fitness and other health-related factors. Emphasis is placed on wellness through the study of nutrition, weight control, stress management, and consumer facts on exercise and fitness. Upon completion, students should be able to plan a personal, lifelong fitness program based on individual needs, abilities, and interests. Classes will be individually structured to accommodate and enhance various levels of fitness.				
PED 121 Walk, Jog, Run	0	3	0	1
Prerequisites: None Corequisites: None This course covers the basic concepts involved in safely and effectively improving cardiovascular fitness. Emphasis is placed on walking, jogging, or running as a means of achieving fitness. Upon completion, students should be able to understand and appreciate the benefits derived from these activities.				
PED 128 Golf-Beginning	0	2	0	1
Prerequisites: None Corequisites: None This course emphasizes the fundamentals of golf. Topics include the proper grips, stance, alignment, swings for the short and long game, putting, and the rules and etiquette of golf. Upon completion, students should be able to perform the basic golf shots and demonstrate a knowledge of the rules and etiquette of golf. Individualized corrections of fundamental skills are stressed along with their use during course play.				
PED 130 Tennis-Beginning	0	2	0	1
Prerequisites: None Corequisites: None This course emphasizes the fundamentals of tennis. Topics include basic strokes, rules, etiquette, and court play. Upon completion, students should be able to play recreational tennis. Individualized instruction along with group drills promote stroke development and basic strategy for in-class play.				
PED 138 Archery	0	2	0	1
Prerequisites: None Corequisites: None This course introduces basic archery safety and skills. Topics include proper techniques of stance, bracing, drawing, and releasing, as well as terminology and scoring. Upon completion, students should be able to participate safely in target archery. Individualized instruction on fundamental skills enhances performance during class shooting and competition.				

PED 139 Bowling-Beginning	0	2	0	1
Prerequisites: None Corequisites: None This course introduces the fundamentals of bowling. Emphasis is placed on ball selection, grips, stance, and delivery along with rules and etiquette. Upon completion, students should be able to participate in recreational bowling. Classes stress individualized correction of the approach and delivery along with the introduction of spot bowling and league bowling.				
PED 143 Volleyball-Beginning	0	2	0	1
Prerequisites: None Corequisites: None This course covers the fundamentals of volleyball. Emphasis is placed on the basics of serving, passing, setting, spiking, blocking, and the rules and etiquette of volleyball. Upon completion, students should be able to participate in recreational volleyball. Individualized instruction enhances fundamental skills along with their use in drills and class play.				
PED 175 Horseback Riding I	0	2	0	1
Prerequisites: None Corequisites: None This course introduces beginning and non-riders to recreational horseback riding. Topics include riding skills, equipment, handling of horses, mounting, care of the horse, and coordinated horse-rider balance. Upon completion, students should be able to demonstrate riding, safety, and horse management skills.				
PED 176 Horseback Riding II	0	2	0	1
Prerequisites: PED 175 Corequisites: None This course is designed to give advanced riding experiences in a variety of specialized situations. Emphasis is placed on the development of skills such as jumping, rodeo games, and trail riding. Upon completion, students should be able to demonstrate control and management of the horse and perform various riding techniques.				
PED 177 Ice Skating	0	2	0	1
Prerequisites: None Corequisites: None This course introduces the fundamentals of ice skating. Emphasis is placed on basic positioning, balance, and form on ice. Upon completion, students should be able to demonstrate skills necessary for recreational ice skating.				
PHI 210 History of Philosophy	3	0	0	3
Prerequisites: ENG 111 Corequisites: None This course introduces fundamental philosophical issues through an historical perspective. Emphasis is placed on such figures as Plato, Aristotle, Lao-Tzu, Confucius, Augustine, Aquinas, Descartes, Locke, Kant, Wollstonecraft, Nietzsche, and Sartre. Upon completion, students should be able to identify and distinguish among the key positions of the philosophers studied. Students will be required to complete a research project which will be presented orally to the class.				
PHI 215 Philosophical Issues	3	0	0	3
Prerequisites: ENG 111 Corequisites: None This course introduces fundamental issues in philosophy considering the views of classical and contemporary philosophers. Emphasis is placed on knowledge and belief, appearance and reality, determinism and free will, faith and reason, and justice and inequality. Upon completion, students should be able to identify, analyze, and critique the philosophical components of an issue.				

PHI 220 Western Philosophy I 3 0 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course covers Western intellectual and philosophic thought from the early Greeks through the medievalists. Emphasis is placed on such figures as the pre-Socratics, Plato, Aristotle, Epicurus, Epictetus, Augustine, Suarez, Anselm, and Aquinas. Upon completion, students should be able to trace the development of leading ideas regarding reality, knowledge, reason, and faith. Students will be required to complete a research project which will be presented orally to the class.

PHI 221 Western Philosophy II 3 0 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course covers Western intellectual and philosophic thought from post-medievalists through recent thinkers. Emphasis is placed on such figures as Descartes, Spinoza, Leibnitz, Locke, Berkeley, Hume, Kant, Hegel, Marx, Mill, and representatives of pragmatism, logical positivism, and existentialism. Upon completion, students should be able to trace the development of leading ideas concerning knowledge, reality, science, society, and the limits of reason. Students will be required to complete a research project that will be presented orally to the class.

PHI 230 Introduction to Logic 3 0 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course introduces basic concepts and techniques for distinguishing between good and bad reasoning. Emphasis is placed on deduction, induction, validity, soundness, syllogisms, truth functions, predicate logic, analogical inference, common fallacies, and scientific methods. Upon completion, students should be able to analyze arguments, distinguish between deductive and inductive arguments, test validity, and appraise inductive reasoning. Students will be required to complete weekly assigned exercises, do daily board work, and give oral explanations to class members.

PHI 240 Introduction to Ethics 3 0 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course introduces theories about the nature and foundations of moral judgments and applications to contemporary moral issues. Emphasis is placed on utilitarianism, rule-based ethics, existentialism, relativism versus objectivism, and egoism. Upon completion, students should be able to apply various ethical theories to individual moral issues such as euthanasia, abortion, crime and punishment, and justice. Students will be required to complete a reflective thinking journal, individual research papers, and a final issues paper to be orally shared in class.

PHY 121 Applied Physics I 3 2 0 4
 Prerequisites: None
 Corequisites: None
 This algebra-based course introduces fundamental physical concepts as applied to industrial and service technology fields. Topics include systems of units, problem-solving methods, graphical analyses, vectors, motion, forces, Newton's laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to demonstrate an understanding of the principles studied as applied in industrial and service fields.

PHY 131 Physics-Mechanics 3 2 0 4
 Prerequisites: MAT 121
 Corequisites: None
 This algebra/trigonometry-based course introduces fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, vectors, motion, forces, Newton's laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.

PHY 133 Physics-Sound and Light 3 2 0 4
 Prerequisites: PHY 131
 Corequisites: None
 This algebra/trigonometry-based course is a study of fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, wave motion, sound, light, and modern physics. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.

PHY 151 College Physics I 3 2 0 4
 Prerequisites: MAT 121, MAT 161 or MAT 171
 Corequisites: None
 This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vectors, linear kinematics and dynamics, energy, power, momentum, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

PHY 152 College Physics II 3 2 0 4
 Prerequisites: PHY 151
 Corequisites: None
 This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

PHY 153 Modern Topics in Physics 3 2 0 4
 Prerequisites: PHY 151
 Corequisites: None
 This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include atomic structure, nuclear processes, natural and artificial radioactivity, basic quantum theory, and special relativity. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

PHY 251 General Physics I 3 3 0 4
 Prerequisites: MAT 271
 Corequisites: MAT 272
 This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vector operations, linear kinematics and dynamics, energy, power, momentum, rotational mechanics, periodic motion, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

PHY 252 General Physics II 3 3 0 4
 Prerequisites: MAT 272, PHY 251
 Corequisites: None
 This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

PLA 110 Introduction to Plastics 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the plastics processing industry, including thermoplastics and thermosets. Emphasis is placed on the description, classification, and properties of common plastics and processes and current trends in the industry. Upon completion, students should be able to describe the differences between thermoplastics and thermosets and recognize the basics of the different plastic processes.

PLA 115 Polymer Processing 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces theory and hands-on experience in common polymer processing techniques. Topics include injection molding, extrusion, thermoforming, blow molding, casting, roll forming, thermofusion, and other processes. Upon completion, students should be able to understand the setup, operation, and troubleshooting of common plastic processing equipment.

PLA 120 Injection Molding 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course provides theory and processing experience with the injection molding process. Topics include machine type, molds, controls, machine-polymer part relationship, molding factors, troubleshooting, and molding problems/solutions. Upon completion, students should be able to demonstrate an understanding of machine setup and operation and be able to optimize common injection molding machines.

PLA 210 Mold Maintenance/ Design 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an in-depth study of the design, maintenance, and repair of molds used in the plastics industry. Topics include mold/die components, materials, types, functions, heating/cooling, designs, cleaning, and repair. Upon completion, students should be able to describe and utilize various types and functions of molds and gates and understand typical plastic design rules.

PLA 215 Polymeric Materials 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an overview of polymeric materials, from commodity grade to advanced/specialty resins. Topics include chemistry, properties, material characterization, testing, and toxicity. Upon completion, students should be able to demonstrate an understanding of the hierarchy of plastics and how it affects material selection, testing, and safety.

PLA 220 Moldflow 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces flow analysis software. Topics include mold flow design principles, concepts, material databases, model construction, and interpretation of results. Upon completion, students should be able to model a part/runner system, optimize gate location, analyze and interpret fill, and recommend design changes.

PLA 225 Extrusion 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course provides theory and processing experience with the extrusion molding process. Topics include safe start-up, operation, and shutdown of machines, machine components, blown film, sheet, coating, pipe/profiles, wire coating, and fibers. Upon completion, students should be able to setup, operate, and troubleshoot the extrusion process and its variations.

PLA 230 Advanced Plastics Manufacturing 3 3 0 4
 Prerequisites: PLA 120
 Corequisites: None
 This course covers advanced plastics manufacturing processes. Topics include hands-on experience, material selection, manufacturing cost, process optimization, troubleshooting, and project management. Upon completion, students should be able to understand, perform, and troubleshoot advanced processes in a manufacturing environment.

PLU 110 Modern Plumbing 4 15 0 9
 Prerequisites: None
 Corequisites: None
 This course introduces the tools, equipment, and materials associated with the plumbing industry. Topics include safety, use and care of tools, recognition and assembly of fittings and pipes, and other related topics. Upon completion, students should be able to safely assemble various pipes and fittings in accordance with state code requirements.

PLU 111 Introduction to Basic Plumbing 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces basic plumbing tools, materials, and fixtures. Topics include standard tools, materials, and fixtures used in basic plumbing systems and other related topics. Upon completion, students should be able to demonstrate an understanding of a basic plumbing system.

PLU 120 Plumbing Applications 4 15 0 9
 Prerequisites: None
 Corequisites: None
 This course covers general plumbing layout, fixtures, and water heaters. Topics include drainage, waste and vent pipes, water service and distribution, fixture installation, water heaters, and other related topics. Upon completion, students should be able to safely install common fixtures and systems in compliance with state and local building codes.

PLU 130 Plumbing Systems	3	9	0	6
Prerequisites: None				
Corequisites: None				
This course covers the maintenance and repair of plumbing lines and fixtures. Emphasis is placed on identifying and diagnosing problems related to water, drain and vent lines, water heaters, and plumbing fixtures. Upon completion, students should be able to identify and diagnose needed repairs to the plumbing system.				
PLU 140 Introduction to Plumbing Codes	1	2	0	2
Prerequisites: None				
Corequisites: PLU 192				
This course covers plumbing industry codes and regulations. Emphasis is placed on North Carolina regulations and the minimum requirements for plumbing materials and design. Upon completion, students should be able to research and interpret North Carolina plumbing codes.				
PLU 150 Plumbing Diagrams	1	2	0	2
Prerequisites: None				
Corequisites: None				
This course introduces sketching diagrams and interpretation of blueprints applicable to the plumbing trades. Emphasis is placed on plumbing plans for domestic and/or commercial buildings. Upon completion, students should be able to sketch plumbing diagrams applicable to the plumbing trades.				
PLU 192 Selected Topics in Plumbing	-	-	-	2
Prerequisites: Varies, based on topic				
Corequisites: PLU 140				
This course provides an opportunity to explore areas of current interest in Plumbing. Emphasis is placed on subject matter appropriate to plumbing. Upon completion, students should be able to demonstrate an understanding of the specific area of study.				
PLU 211 Commercial/Industrial Plumbing	2	2	0	3
Prerequisites: None				
Corequisites: None				
This course covers the installation of various commercial and industrial piping. Topics include piping in steam, gas, air, fire sprinklers, and other related topics. Upon completion, students should be able to select and install various piping systems for a variety of applications.				
PME 113 Construction Equipment Repair	1	2	0	2
Prerequisites: None				
Corequisites: None				
This course introduces construction equipment repair. Topics include product identification, care of tools, product nomenclature, fasteners, and proper lifting and blocking of construction equipment. Upon completion, students should be able to identify products and properly block and secure construction equipment.				
PME 113a Construction Equipment Repair	1	1	0	1
Prerequisites: None				
Corequisites: None				
This is part 1 of a course that introduces construction equipment repair. Topics include product identification, care of tools, product nomenclature, fasteners, and proper lifting and blocking of construction equipment. Upon completion, students should be able to identify products and properly block and secure construction equipment. <i>This course is a unique concentration requirement of the Construction Systems concentration in the Medium/Heavy Duty Vehicles Systems Technology program.</i>				

PME 113b Construction Equipment Repair	0	2	0	1
Prerequisites: PME 113a				
Corequisites: None				
This is part 2 of a course that introduces construction equipment repair. Topics include product identification, care of tools, product nomenclature, fasteners, and proper lifting and blocking of construction equipment. Upon completion, students should be able to identify products and properly block and secure construction equipment. <i>This course is a unique concentration requirement of the Construction Systems concentration in the Medium/Heavy Duty Vehicles Systems Technology program.</i>				
PME 117 Equipment Braking Systems	2	3	0	3
Prerequisites: None				
Corequisites: None				
This course covers fundamental theory, adjustments, and repair of hydraulic and pneumatic braking systems used primarily in mobile construction equipment. Emphasis is placed on braking systems used in construction equipment including pneumatic, hydraulic, dynamic, and inboard brakes. Upon completion, students should be able to use proper diagnostic procedures to identify, repair, or replace components.				
PME 118 Undercarriage Components	1	2	0	2
Prerequisites: None				
Corequisites: None				
This course covers the fundamentals, function, repair, adjustments, and safety requirements of undercarriage components on track-equipped machines. Topics include identification, measurement, wear points, adjustments, and operation of components on track-equipped machines. Upon completion, students should be able to properly measure, adjust, rebuild or replace undercarriage components.				
PME 211 Advanced Equipment Repair	2	6	0	4
Prerequisites: None				
Corequisites: None				
This course provides advanced training in equipment repair through hands-on training along with additional training aids. Emphasis is placed on systems and components found on construction equipment. Upon completion, students should be able to adjust, troubleshoot, and repair most construction equipment systems.				
PME 221 Construction Equipment Servicing	1	2	0	2
Prerequisites: None				
Corequisites: None				
This course covers the servicing requirements for construction equipment. Topics include pre-delivery, after-sales check, routine servicing, and thousand-hour service. Upon completion, students should be able to locate service points, make minor service adjustments, and perform other routine servicing.				
POL 110 Introduction to Political Science	3	0	0	3
Prerequisites: ENG 090, RED 090, or placement				
Corequisites: None				
This course introduces basic political concepts used by governments and addresses a wide range of political issues. Topics include political theory, ideologies, legitimacy, and sovereignty in democratic and non-democratic systems. Upon completion, students should be able to discuss a variety of issues inherent in all political systems and draw logical conclusions in evaluating these systems. <i>This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.</i>				

POL 120 American Government 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course is a study of the origins, development, structure, and functions of American national government. Topics include the constitutional framework, federalism, the three branches of government including the bureaucracy, civil rights and liberties, political participation and behavior, and policy formation. Upon completion, students should be able to demonstrate an understanding of the basic concepts and participatory processes of the American political system. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC).*

POL 130 State and Local Government 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course includes state and local political institutions and practices in the context of American federalism. Emphasis is placed on procedural and policy differences as well as political issues in state, regional, and local governments of North Carolina. Upon completion, students should be able to identify and discuss various problems associated with intergovernmental politics and their effect on the community and the individual. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

POL 210 Comparative Government 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course provides a cross-national perspective on the government and politics of contemporary nations such as Great Britain, France, Germany, and Russia. Topics include each country's historical uniqueness, key institutions, attitudes and ideologies, patterns of interaction, and current political problems. Upon completion, students should be able to identify and compare various nations' governmental structures, processes, ideologies, and capacity to resolve major problems. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences*

PSY 110 Life Span Development 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an introduction to the study of human growth and development. Emphasis is placed on the physical, cognitive, and psychosocial aspects of development from conception to death. Upon completion, students should be able to demonstrate knowledge of development across the life span and apply this knowledge to their specific field of study.

PSY 118 Interpersonal Psychology 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the basic principles of psychology as they relate to personal and professional development. Emphasis is placed on personality traits, communication/leadership styles, effective problem solving, and cultural diversity as they apply to personal and work environments. Upon completion, students should be able to demonstrate an understanding of these principles of psychology as they apply to personal and professional development.

PSY 150 General Psychology 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course provides an overview of the scientific study of human behavior. Topics include history, methodology, biopsychology, sensation, perception, learning, motivation, cognition, abnormal behavior, personality theory, social psychology, and other relevant topics. Upon completion, students should be able to demonstrate a basic knowledge of the science of psychology. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC).*

PSY 237 Social Psychology 3 0 0 3
 Prerequisites: PSY 150 or SOC 210
 Corequisites: None
 This course introduces the study of individual behavior within social contexts. Topics include affiliation, attitude formation and change, conformity, altruism, aggression, attribution, interpersonal attraction, and group behavior. Upon completion, students should be able to demonstrate an understanding of the basic principles of social influences on behavior. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.*

PSY 239 Psychology of Personality 3 0 0 3
 Prerequisites: PSY 150
 Corequisites: None
 This course covers major personality theories and personality research methods. Topics include psychoanalytic, behavioristic, social learning, cognitive, humanistic, and trait theories including supporting research. Upon completion, students should be able to compare and contrast traditional and contemporary approaches to the understanding of individual differences in human behavior. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.*

PSY 241 Developmental Psychology 3 0 0 3
 Prerequisites: PSY 150
 Corequisites: None
 This course is a study of human growth and development. Emphasis is placed on major theories and perspectives as they relate to the physical, cognitive, and psychosocial aspects of development from conception to death. Upon completion, students should be able to demonstrate knowledge of development across the life span. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC)*

PSY 246 Adolescent Psychology 3 0 0 3
 Prerequisites: PSY 150
 Corequisites: None
 This course provides an overview of the behavior patterns, life changes, and social issues that accompany the developmental stage of adolescence. Topics include developmental theories; physical, cognitive and psychosocial growth; transitions to young adulthood; and sociocultural factors that influence adolescent roles in home, school and community. Upon completion, students should be able to identify typical and atypical adolescent behavior patterns as well as appropriate strategies for interacting with adolescents. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

PSY 259 Human Sexuality 3 0 0 3
 Prerequisites: PSY 150
 Corequisites: None
 This course provides the biological, psychological, and sociocultural aspects of human sexuality and related research. Topics include reproductive biology, sexual and psychosexual development, sexual orientation, contraception, sexually transmitted diseases, sexual disorders, theories of sexuality, and related issues. Upon completion, students should be able to demonstrate an overall knowledge and understanding of human sexuality. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

PSY 263 Educational Psychology 3 0 0 3
 Prerequisites: PSY 150
 Corequisites: None
 This course examines the application of psychological theories and principles to the educational process and setting. Topics include learning and cognitive theories, achievement motivation, teaching and learning styles, teacher and learner roles, assessment, and developmental issues. Upon completion, students should be able to demonstrate an understanding of the application of psychological theory to educational practice. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

PSY 281 Abnormal Psychology 3 0 0 3
 Prerequisites: PSY 150
 Corequisites: None
 This course provides an examination of the various psychological disorders, as well as theoretical, clinical, and experimental perspectives of the study of psychopathology. Emphasis is placed on terminology, classification, etiology, assessment, and treatment of the major disorders. Upon completion, students should be able to distinguish between normal and abnormal behavior patterns as well as demonstrate knowledge of etiology, symptoms, and therapeutic techniques. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC).*

PTC 110 Industrial Environment 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the pharmaceutical industry, including a broad overview of work in this field. Emphasis is placed on good manufacturing practices (GMP), work conduct, company organization, job expectations, personal safety, hygiene, and company rules and regulations. Upon completion, students should be able to follow good manufacturing practice regulations and inspect a pharmaceutical manufacturing facility for compliance with GMP.

PTC 120 Pharmaceutical Quality Control 3 2 0 4
 Prerequisites: MAT 121, PTC 110
 Corequisites: None
 This course covers the principles and techniques of quality control as found in the pharmaceutical industry. Emphasis is placed on lot inspection, sampling procedures, control charts, vendor auditing, statistical analysis, and Military Standard 105. Upon completion, students should be able to apply and follow the appropriate statistical sampling plans for Pharmaceutical Product Lot Acceptance.

PTC 193 Selected Topics in Industrial Pharmaceutical Technology - - - 3
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Industrial Pharmaceutical Technology. Emphasis is placed on subject matter appropriate to industrial pharmaceutical. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

PTC 210 Pharmaceutical Industrial Processes 3 2 0 4
 Prerequisites: PTC 120
 Corequisites: None
 This course examines the manufacturing processes for selected pharmaceutical dosage forms. Emphasis is placed on manufacturing and testing of tablets, capsules, sustained release drugs, solutions, emulsions, suspensions, creams, ointments, aerosols, and sterile products. Upon completion, students should be able to demonstrate the processing steps and test procedures for these dosage forms.

PTC 212 Applied Microbiology 3 2 0 4
 Prerequisites: BIO 110 or BIO 111, CHM 132
 Corequisites: None
 This course covers microbiology as it applies to the pharmaceutical industry. Emphasis is placed on types of microorganisms and identification, culture, sterilization, and contamination control. Upon completion, students should be able to explain how microbiology and microbiological control are important to the pharmaceutical industry.

PTC 214 Parenteral Processes 3 2 0 4
 Prerequisites: PTC 120
 Corequisites: PTC 212
 This course covers quality assurance for injectable products. Emphasis is placed on environmental monitoring and sterility, pyrogen, particulate, and package integrity testing. Upon completion, students should be able to demonstrate competence in these test procedures.

PTC 222 Pharmaceutical Process Control 2 2 0 3
 Prerequisites: PTC 210
 Corequisites: None
 This course provides a systematic study of the control of all processes within the pharmaceutical industry. Topics include production economics, plant layout, computer-integrated manufacturing, planning and controls, materials management, routing and scheduling, progress reports, and relationship with quality control. Upon completion, students should be able to demonstrate an understanding of process flow controls, economic considerations, and materials management in modern pharmaceutical manufacturing.

PTC 226 Validation 3 0 0 3
 Prerequisites: PTC 210, PTC 214
 Corequisites: None
 This course covers the methods used in pharmaceutical process and product validation. Emphasis is placed on manufacturing processes, specific dosage forms, FDA rationale, and documentation requirements. Upon completion, students should be able to write a validation protocol and perform validation studies for a variety of pharmaceutical applications.

PTC 228 Pharmaceutical Issues 1 0 0 1
 Prerequisites: PTC 110
 Corequisites: None
 This course provides a forum for discussion of current pharmaceutical topics. Emphasis is placed on events, news, regulations, and technology in pharmaceutical manufacturing. Upon completion, students should be able to demonstrate an understanding of the dynamic nature of the pharmaceutical industry.

R

RAD 110 Radiography Introduction and Patient Care 2 3 0 3
 Prerequisites: Enrollment in Radiography program
 Corequisites: RAD 111, RAD 151
 This course provides an overview of the radiography profession and student responsibilities. Emphasis is placed on basic principles of patient care, radiation protection, technical factors, and medical terminology. Upon completion, students should be able to demonstrate basic skills in these areas.

RAD 111 Radiographic Procedures I 3 3 0 4
 Prerequisites: Enrollment in the Radiography program
 Corequisites: RAD 110, RAD 151
 This course provides the knowledge and skills necessary to perform standard radiographic procedures. Emphasis is placed on radiography of the chest, abdomen, extremities, spine, and pelvis. Upon completion, students should be able to demonstrate competence in these areas.

RAD 112 Radiographic Procedures II 3 3 0 4
 Prerequisites: RAD 110, RAD 111, RAD 151
 Corequisites: RAD 121, RAD 161
 This course provides the knowledge and skills necessary to perform standard radiographic procedures. Emphasis is placed on radiography of the skull, bony thorax, and gastrointestinal, biliary, and urinary systems. Upon completion, students should be able to demonstrate competence in these areas.

RAD 121 Radiographic Imaging I 2 3 0 3
 Prerequisites: RAD 110, RAD 111, RAD 112, RAD 151, RAD 161
 Corequisites: None
 This course covers factors of image quality and methods of exposure control. Topics include density, contrast, recorded detail, distortion, technique charts, manual and automatic exposure control, and tube rating charts. Upon completion, students should be able to demonstrate an understanding of exposure control and the effects of exposure factors on image quality.

RAD 122 Radiographic Imaging II 1 3 0 2
 Prerequisites: RAD 112, RAD 121, RAD 161
 Corequisites: RAD 131, RAD 171
 This course covers image receptor systems and processing principles. Topics include film, film storage, processing, intensifying screens, grids, and beam limitation. Upon completion, students should be able to demonstrate the principles of selection and usage of imaging accessories to produce quality images.

RAD 131 Radiographic Physics I 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the fundamental principles of physics that underlie diagnostic X-ray production and radiography. Topics include electromagnetic waves, electricity and magnetism, electrical energy, and power and circuits as they relate to radiography. Upon completion, students should be able to demonstrate an understanding of basic principles of physics as they relate to the operation of radiographic equipment.

RAD 151 Radiographic Clinical Education I 0 0 6 2
 Prerequisites: Enrollment in the Radiography program
 Corequisites: RAD 110, RAD 111
 This course introduces patient management and basic radiographic procedures in the clinical setting. Emphasis is placed on mastering positioning of the chest and extremities, manipulating equipment, and applying principles of ALARA. Upon completion, students should be able to demonstrate successful completion of clinical objectives.

RAD 161 Radiographic Clinical Education II 0 0 15 5
 Prerequisites: RAD 110, RAD 111, RAD 151
 Corequisites: RAD 112, RAD 121
 This course provides additional experience in patient management and in more complex radiographic procedures. Emphasis is placed on mastering positioning of the spine, pelvis, head and neck, and thorax and adapting procedures to meet patient variations. Upon completion, students should be able to demonstrate successful completion of clinical objectives.

RAD 171 Radiographic Clinical Education III 0 0 12 4
 Prerequisites: RAD 112, RAD 121, RAD 161
 Corequisites: RAD 122, RAD 131
 This course provides experience in patient management specific to fluoroscopic and advanced radiographic procedures. Emphasis is placed on applying appropriate technical factors to all studies and mastering positioning of gastrointestinal and urological studies. Upon completion, students should be able to demonstrate successful completion of clinical objectives.

RAD 211 Radiographic Procedures III 2 3 0 3
 Prerequisites: RAD 122, RAD 131, RAD 171
 Corequisites: RAD 231, RAD 241, RAD 251
 This course provides the knowledge and skills necessary to perform standard and specialty radiographic procedures. Emphasis is placed on radiographic specialty procedures, pathology, and advanced imaging. Upon completion, students should be able to demonstrate competence in these areas.

RAD 231 Radiographic Physics II 1 3 0 2
 Prerequisites: RAD 122 and RAD 131 or RAD 171
 Corequisites: RAD 211, RAD 241, RAD 251
 This course continues the study of physics that underlie diagnostic X-ray production and radiographic and fluoroscopic equipment. Topics include X-ray production, electromagnetic interactions with matter, X-ray devices, and equipment circuitry. Upon completion, students should be able to demonstrate an understanding of the application of physical concepts as related to image production.

RAD 241 Radiobiology/Protection 2 0 0 2
 Prerequisites: RAD 122, RAD 131, RAD 171
 Corequisites: RAD 211, RAD 231, RAD 251
 This course covers the principles of radiation protection and radiobiology. Topics include the effects of ionizing radiation on body tissues, protective measures for limiting exposure to the patient and personnel, and radiation monitoring devices. Upon completion, students should be able to demonstrate an understanding of the effects and uses of radiation in diagnostic radiology.

RAD 245 Rad Quality Management 1 3 0 2
 Prerequisites: RAD 211, RAD 231, RAD 241, RAD 251
 Corequisites: RAD 261, RAD 290
 This course provides an overview of imaging concepts and introduces methods of quality assurance. Topics include a systematic approach for image evaluation and analysis of imaging service and quality assurance. Upon completion, students should be able to establish and administer a quality assurance program and conduct a critical review of images.

RAD 251 Radiographic Clinical Education IV 0 0 21 7
 Prerequisites: RAD 122, RAD 131, RAD 171
 Corequisites: RAD 211, RAD 231, RAD 241
 This course provides the opportunity to continue mastering all basic radiographic procedures and to attain experience in advanced areas. Emphasis is placed on equipment operation, pathological recognition, pediatric and geriatric variations, and a further awareness of radiation protection requirements. Upon completion, students should be able to demonstrate successful completion of clinical objectives.

RAD 261 Radiographic Clinical Education V 0 0 21 7
 Prerequisites: RAD 211, RAD 231, RAD 241, RAD 251
 Corequisites: RAD 245, RAD 290
 This course is designed to enhance expertise in all radiographic procedures, patient management, radiation protection, and image production and evaluation. Emphasis is placed on developing an autonomous approach to the diversity of clinical situations and successfully adapting to those procedures. Upon completion, students should be able to demonstrate successful completion of clinical objectives.

RAD 271 Radiography Capstone 0 3 0 1
 Prerequisites: RAD 211, RAD 231, RAD 241, RAD 251
 Corequisites: RAD 245, RAD 261
 This course provides an opportunity to exhibit problem-solving skills required for certification. Emphasis is placed on critical thinking and integration of didactic and clinical components. Upon completion, students should be able to demonstrate the knowledge required of any entry-level radiographer.

RAD 290 See RAD 271.

REA 101 Introduction Real Estate Appraisal R-1 2 0 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the entire valuation process, with specific coverage of residential neighborhood and property analysis. Topics include basic real property law, concepts of value and operation of real estate markets, mathematical and statistical concepts, finance, and residential construction/design. Upon completion, students should be able to demonstrate adequate preparation for REA 102. This course is required for the Real Estate Appraisal certificate.

REA 102 Valuation Principles and Practices R-2 2 0 0 2
 Prerequisites: REA 101
 Corequisites: None
 This course introduces procedures used to develop an estimate of value and how the various principles of value relate to the application of such procedures. Topics include the sales comparison approach, site valuation, sales comparison, the cost approach, the income approach, and reconciliation. Upon completion, students should be able to complete the Uniform Residential Appraisal Report (URAR).

REA 103 Applied Residential Property Valuation R-3 1 0 0 1
 Prerequisites: REA 102
 Corequisites: None
 This course covers the laws and standards practiced by appraisers in the appraisal of residential 1-4 unit properties and small farms. Topics include Financial Institutions Reform and Recovery Enforcement Act (FIRREA) and North Carolina statutes and rules. Upon completion, students should be able to demonstrate eligibility to sit for the NC Appraisal Board license trainee examination.

REA 104 USPAP R-4 1 0 0 1
 Prerequisites: REA 103
 Corequisites: None
 This course introduces all aspects of the appraisers conduct, ethics and competency. Topics include appraisal standards, reviews, reports, and the confidentiality provisions as set forth by the North Carolina Appraisal Board. Upon completion, students should be able to sit for the National USPAP examination.

REA 201 Introduction Income Property Appraisal G-1 2 0 0 2
 Prerequisites: REA 103
 Corequisites: None
 This course introduces concepts and techniques used to appraise real estate income properties. Topics include real estate market analysis, property analysis and site valuation, how to use financial calculators, present value, NOI, and before-tax cash flow. Upon completion, students should be able to estimate income property values using direct capitalization and to sit for the NC Certified Residential Appraiser examination.

REA 202 Advanced Income Capital Procedures G-2 2 0 0 2
 Prerequisites: REA 201
 Corequisites: A financial calculator is required for this course
 This course expands direct capitalization techniques and introduces yield capitalization. Topics include yield rates, discounted cash flow, financial leverage, and traditional yield capitalization formulas. Upon completion, students should be able to estimate the value of income producing property using yield capitalization techniques.

REA 203 Applied Income Property Valuation G-3 2 0 0 2
 Prerequisites: REA 202
 Corequisites: None
 This course covers the laws, rules, and standards pertaining to the principles and practices applicable to the appraisal of income properties. Topics include FIRREA, USPAP, Uniform Commercial and Industrial Appraisal Report (UCIAR) form, North Carolina statutes and rules, and case studies. Upon completion, students should be able to prepare a narrative report that conforms to the USPAP and sit for the NC Certified General Appraisal examination.

RED 001 Study Skills Lab - - - -
 Prerequisites: None
 Corequisites: None
 Designed to support courses across the curriculum by offering study skills and providing assistance with reading skills such as literal and inferential comprehension, vocabulary skills, recalling details, finding main ideas, and retention of materials.

RED 070 Essential Reading Skills 3 2 0 4
 Prerequisites: None
 Corequisites: None
 This course is designed for those with limited reading skills. Emphasis is placed on basic word attack skills, vocabulary, transitional words, paragraph organization, basic comprehension skills, and learning strategies. Upon completion, students should be able to demonstrate competence in the skills required for RED 080.

RED 080 Introduction to College Reading 3 2 0 4
 Prerequisites: RED 070 or ENG 075 or placement
 Corequisites: None
 This course introduces effective reading and inferential thinking skills in preparation for RED 090. Emphasis is placed on vocabulary, comprehension, and reading strategies. Upon completion, students should be able to determine main ideas and supporting details, recognize basic patterns of organization, draw conclusions, and understand vocabulary in context.

RED 090 Improved College Reading 3 2 0 4
 Prerequisites: RED 080 or ENG 085 or placement
 Corequisites: None
 This course is designed to improve reading and critical thinking skills. Topics include vocabulary enhancement; extracting implied meaning; analyzing author's purpose, tone, and style; and drawing conclusions and responding to written material. Upon completion, students should be able to comprehend and analyze college-level reading material.

REL 110 World Religions 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course introduces the world's major religious traditions. Topics include Primal religions, Hinduism, Buddhism, Islam, Judaism, and Christianity. Upon completion, students should be able to identify the origins, history, beliefs, and practices of the religions studied. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

REL 111 Eastern Religions 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course introduces the major Asian religious traditions. Topics include Hinduism, Buddhism, Taoism, Confucianism, and Shinto. Upon completion, students should be able to identify the origins, history, beliefs, and practices of the religions studied. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

REL 112 Western Religions 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course introduces the major western religious traditions. Topics include Zoroastrianism, Islam, Judaism, and Christianity. Upon completion, students should be able to identify the origins, history, beliefs, and practices of the religions studied. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

REL 211 Introduction to Old Testament 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course is a survey of the literature of the Hebrews with readings from the law, prophets, and other writings. Emphasis is placed on the use of literary, historical, archeological, and cultural analysis. Upon completion, students should be able to use the tools of critical analysis to read and understand Old Testament literature. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

REL 212 Introduction to New Testament 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course is a survey of the literature of first-century Christianity with readings from the gospels, Acts, and the Pauline and pastoral letters. Topics include the literary structure, audience, and religious perspective of the writings, as well as the historical and cultural context of the early Christian community. Upon completion, students should be able to use the tools of critical analysis to read and understand New Testament literature. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

RLS 112 Real Estate Fundamentals 5 0 0 5
 Prerequisites: None
 Corequisites: None
 This course provides basic instruction in real estate principles and practices. Topics include law, finance, brokerage, closing, valuation, management, taxation, mathematics, construction, land use, property insurance, and NC License Law and Commission Rules. Upon completion, students should be able to demonstrate basic knowledge and skills necessary for real estate sales.

RLS 117 Real Estate Broker 4 0 0 4
 Prerequisites: RLS 112
 Corequisites: None
 This course consists of advanced-level instruction on a variety of topics related to Real Estate law and brokerage practices. Topics include: real estate brokerage, finance and sales, RESPA, fair housing issues, selected NC Real Estate License Law and NC Real Estate Commission Rule issues. Upon completion, students should be able to demonstrate knowledge of real estate brokerage, law and finance.

S

SAB 110 Substance Abuse Overview 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an overview of the core concepts in substance abuse and dependence. Topics include the history of drug use/abuse, effects on societal members, treatment of addiction, and preventive measures. Upon completion, students should be able to demonstrate knowledge of the etiology of drug abuse, addiction, prevention, and treatment.

SAB 120 Intake and Assessment 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course develops processes for establishment of client rapport, elicitation of client information on which therapeutic activities are based, and stimulation of client introspection. Topics include diagnostic criteria, functions of counseling, nonverbal behavior, collaterals and significant others, dual diagnosis, client strengths and weaknesses, uncooperative clients, and crisis interventions. Upon completion, students should be able to establish communication with clients, recognize disorders, obtain information for counseling, and terminate the counseling process.

SAB 125 SAB Case Management 2 2 0 3
 Prerequisites: SAB 120
 Corequisites: None
 This course provides case management activities, including record keeping, recovery issues, community resources, and continuum of care. Emphasis is placed on establishing a systematic approach to monitor the treatment plan and maintain quality of life. Upon completion, students should be able to assist clients in the continuum of care as an ongoing recovery process and develop agency networking.

SAB 135 Addictive Process 3 0 0 3
 Prerequisites: PSY 150
 Corequisites: None
 This course explores the physical, emotional, psychological, and cultural aspects of the addictive process. Emphasis is placed on addictions to food, sex, alcohol, drugs, work, gambling, and relationships. Upon completion, students should be able to identify the effects, prevention strategies, and treatment methods associated with addictive disorders.

SAB 210 Substance Abuse Counseling 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course provides theory and skills acquisition by utilizing intervention strategies designed to obtain therapeutic information, support recovery, and prevent relapse. Topics include counseling individuals and dysfunctional families, screening instruments, counseling techniques and approaches, recovery and relapse, and special populations. Upon completion, students should be able to discuss issues critical to recovery, identify intervention models, and initiate a procedure culminating in cognitive/behavioral change.

SAB 220 Group Techniques/Therapy 2 2 0 3
 Prerequisites: HSE 112
 Corequisites: None
 This course provides a practical guide to diverse methods of group therapy models used in the specific treatment of substance abuse and addiction. Emphasis is placed on the theory and practice of group therapy models specifically designed to treat the cognitive distortions of addiction and substance abuse. Upon completion, students should be able to skillfully practice the group dynamics and techniques formulated for substance abuse and addiction.

SAB 240 Substance Abuse 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces systems of professional standards, values, and issues in substance abuse counseling. Topics include confidentiality, assessment of personal values, professional responsibilities, competencies, and ethics relative to multicultural counseling and research. Upon completion, students should be able to understand and discuss multiple ethical issues applicable to counseling and apply various decision-making models to current issues.

SGR 110 Scientific Graphics 2 3 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces software packages used for graphing, drawing, image manipulation, data visualization, and 3D modeling. Emphasis is placed on solving design problems through appropriate visual communications techniques and on using the packages in combination to produce final documents. Upon completion, students should be able to prepare informal graphics and images and create rendered three-dimensional models.

SEC 110 Security Concepts 3 0 0 3
 Prerequisites: RED 090
 Corequisites: None
 This course introduces the concepts and issues related to securing information systems and the development of policies to implement information security controls. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and processes in information security. Upon completion, students should be able to identify information security risks, create an information security policy, and identify processes to implement and enforce policy.

SEC 150 Secure Communications 2 2 0 3
 Prerequisites: SEC 110; and NET 110 or NET 125
 Corequisites: None
 This course provides an overview of current technologies used to provide secure transport of information across networks. Topics include data integrity through encryption, Virtual Private Networks, SSL, SSH, and IPsec. Upon completion, students should be able to implement secure data transmission technologies.

SEC 160 Secure Administration I 2 2 0 3
 Prerequisites: SEC 110; and NET 110 or NET 125
 Corequisites: None
 This course provides an overview of security administration and fundamentals of designing security architectures. Topics include networking technologies, TCP/IP concepts, protocols, network traffic analysis, monitoring, and security best practices. Upon completion, students should be able to identify normal network traffic using network analysis tools and design basic security defenses.

SEC 170 SOHO Security 2 2 0 3
 Prerequisites: SEC 110
 Corequisites: None
 This course introduces security principles and topics related to the small office/home office networking environment. Topics include network topologies, network protocols, security issues, and best practices for SOHO environments. Upon completion, students should be able to design, setup, secure, and manage a small office/home office network.

SEC 210 Intrusion Detection 2 2 0 3
 Prerequisites: SEC 160
 Corequisites: None
 This course introduces the student to intrusion detection methods in use today. Topics include the types of intrusion detection products, traffic analysis, and planning and placement of intrusion detection solutions. Upon completion, students should be able to plan and implement intrusion detection solution for networks and host based systems.

SEC 220 Defense-In-Depth 2 2 0 3
 Prerequisites: None
 Corequisites: SEC 160
 This course introduces students to the concepts of defense in-depth, a security industry best practice. Topics include firewalls, backup systems, redundant systems, disaster recovery, and incident handling. Upon completion, students should be able to plan effective information security defenses, backup systems, and disaster recovery procedures.

SEC 230 Attack Methodology 3 2 0 4
 Prerequisites: SEC 220
 Corequisites: None
 This course provides the student with an in-depth look at common Internet, network, and host-based attack methodologies. Topics include attack methods such as social engineering, spoofing, denial of service, man-in-the-middle, session hijacking, password cracking, malicious code and web hacking techniques. Upon completion, students should be able to generate anomalous network traffic, identify common network attack patterns, and perform penetration testing.

SEC 240 Wireless Security 2 2 0 3
 Prerequisites: SEC 110 and NET 175
 Corequisites: None
 This course introduces security principles and topics related to the wireless networking environment. Topics include network topologies, network protocols, security issues, and best practices for wireless environments. Upon completion, students should be able to design, setup, manage, and secure a wireless network.

SEC 260 Secure Administration II 2 2 0 3
 Prerequisites: SEC 160
 Corequisites: None
 This course provides the skills necessary to design and implement information security controls. Topics include advanced networking and TCP/IP concepts, network vulnerability analysis, and monitoring. Upon completion, students should be able to distinguish between normal and anomalous network traffic, identify common network attack patterns, and implement security solutions.

SEC 270 Secure Routing/Firewalls 1 4 0 3
 Prerequisites: NET 226 and SEC 110
 Corequisites: None
 This course introduces the principles of securing networks using routers and firewalls. Topics include networking protocols, threat mitigation, firewall configuration, authentication, authorization, intrusion detection, encryption, IPSec, VPNs, and remote access technologies. Upon completion, students should be able to secure internal networks using router and firewall technologies.

SEC 275 Advanced Firewalls 3 2 0 4
 Prerequisites: SEC 270
 Corequisites: None
 This course covers advanced topics in securing networks using firewalls. Topics include networking protocols, firewall status and configuration, syslog configuration, security levels, NAP/PAT, Access Control Lists, Authentication, Authorization and Accounting, VPN, and Remote Access. Upon completion, students should be able to describe, configure, verify, and manage firewall technologies.

SEC 289 Security Capstone Project 1 4 0 3
 Prerequisites: SEC 220
 Corequisites: None
 This course provides the student the opportunity to put into practice all the skills learned to this point. Emphasis is placed on security policy, process planning, procedure definition, business continuity, and systems security architecture. Upon completion, students should be able to design and implement comprehensive information security architecture from the planning and design phase through implementation.

SOC 210 Introduction to Sociology 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course introduces the scientific study of human society, culture, and social interactions. Topics include socialization, research methods, diversity and inequality, cooperation and conflict, social change, social institutions, and organizations. Upon completion, students should be able to demonstrate knowledge of sociological concepts as they apply to the interplay among individuals, groups, and societies. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC).*

SOC 213 Sociology of the Family 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course covers the institution of the family and other intimate relationships. Emphasis is placed on mate selection, gender roles, sexuality, communication, power and conflict, parenthood, diverse lifestyles, divorce and remarriage, and economic issues. Upon completion, students should be able to analyze the family as a social institution and the social forces that influence its development and change. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This course is also available through the Virtual Learning Community (VLC).*

SOC 220 Social Problems 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course provides an in-depth study of current social problems. Emphasis is placed on causes, consequences, and possible solutions to problems associated with families, schools, workplaces, communities, and the environment. Upon completion, students should be able to recognize, define, analyze, and propose solutions to these problems. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.*

SOC 225 Social Diversity 3 0 0 3
 Prerequisites: ENG 090, RED 090, or placement
 Corequisites: None
 This course provides a comparison of diverse roles, interests, opportunities, contributions, and experiences in social life. Topics include race, ethnicity, gender, sexual orientation, class, and religion. Upon completion, students should be able to analyze how cultural and ethnic differences evolve and how they affect personality development, values, and tolerance. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.*

SOC 242 Sociology of Deviance 3 0 0 3
 Prerequisites: ENG 090 and RED 090
 Corequisites: None
 This course provides an overview of deviant behavior and the processes involved in its definition, causation, prevention, control, and treatment. Topics include theories of causation, social control, delinquency, victimization, criminality, the criminal justice system, punishment, rehabilitation, and restitution. Upon completion, students should be able to identify and analyze issues surrounding the nature and development of social responses to deviance. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement*

SOC 252 Sociology of Work 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an understanding of the work experience in terms of rewards, satisfaction, exploitation, alienation, and institutional function and structure. Topics include an examination of industrial, professional, office, and executive work settings in relation to technology, management, and career opportunities. Upon completion, students should be able to understand work in its changing roles, institutions, and economic impact. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

SPA 111 Elementary Spanish I 3 0 0 3
 Prerequisites: ENG 090 or placement
 Corequisites: SPA 181
 This course introduces the fundamental elements of the Spanish language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Spanish and demonstrate cultural awareness. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. This course is also available through the Virtual Learning Community (VLC).*

SPA 112 Elementary Spanish II 3 0 0 3
 Prerequisites: SPA 111
 Corequisites: SPA 182
 This course is a continuation of SPA 111 focusing on the fundamental elements of the Spanish language within a cultural context. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Spanish and demonstrate further cultural awareness.

SPA 120 Spanish for the Workplace 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course offers applied Spanish for the workplace to facilitate basic communication with people whose native language is Spanish. Emphasis is placed on oral communication and career-specific vocabulary that targets health, business, and/or public service professions. Upon completion, students should be able to communicate at a functional level with native speakers and demonstrate cultural sensitivity. Emphasis will be on cultural awareness and cultural context issues.

SPA 141 Culture and Civilization 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course provides an opportunity to explore issues related to the Hispanic world. Topics include historical and current events, geography, and customs. Upon completion, students should be able to identify and discuss selected topics and cultural differences related to the Hispanic world.

SPA 151 Hispanic Literature 3 0 0 3
 Prerequisites: ENG 111
 Corequisites: None
 This course includes selected readings by Hispanic writers. Topics include fictional and non-fictional works by representative authors from a variety of genres and literary periods. Upon completion, students should be able to analyze and discuss selected texts within relevant cultural and historical contexts.

SPA 161 Cultural Immersion 2 3 0 3
 Prerequisites: SPA 111
 Corequisites: None
 This course explores Hispanic culture through intensive study on campus and field experience in a host country or area. Topics include an overview of linguistic, historical, geographical, sociopolitical, economic, and/or artistic concerns of the area visited. Upon completion, students should be able to exhibit first-hand knowledge of issues pertinent to the host area and demonstrate understanding of cultural differences.

SPA 181 Spanish Lab 1 0 2 0 1
 Prerequisites: ENG 090 or placement
 Corequisites: SPA 111
 This course provides an opportunity to enhance acquisition of the fundamental elements of the Spanish language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of various supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Spanish and demonstrate cultural awareness. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

SPA 182 Spanish Lab 2 0 2 0 1
 Prerequisites: SPA 181
 Corequisites: SPA 112
 This course provides an opportunity to enhance acquisition of the fundamental elements of the Spanish language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of various supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Spanish and demonstrate cultural awareness.

SPA 211 Intermediate Spanish I 3 0 0 3
 Prerequisites: SPA 112
 Corequisites: SPA 281
 This course provides a review and expansion of the essential skills of the Spanish language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future.

SPA 212 Intermediate Spanish II 3 0 0 3
 Prerequisites: SPA 211
 Corequisites: SPA 282
 This course provides a continuation of SPA 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication.

SPA 221 Spanish Conversation 3 0 0 3
 Prerequisites: SPA 212
 Corequisites: None
 This course provides an opportunity for intensive communication in spoken Spanish. Emphasis is placed on vocabulary acquisition and interactive communication through the discussion of media materials and authentic texts. Upon completion, students should be able to discuss selected topics, express ideas and opinions clearly, and engage in formal and informal conversations.

SPA 281 Spanish Lab 3 0 2 0 1
 Prerequisites: SPA 182
 Corequisites: SPA 211
 This course provides an opportunity to enhance the review and expansion of the essential skills of the Spanish language. Emphasis is placed on the study of authentic and representative literary and cultural texts through the use of various supplementary learning media and materials. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future.

SPA 282 Spanish Lab 4 0 2 0 1
 Prerequisites: SPA 281
 Corequisites: SPA 212
 This course provides an opportunity to enhance the review and expansion of the essential skills of the Spanish language. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts through the use of various supplementary learning media and materials. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication.

SRV 110 Surveying I 2 6 0 4
 Prerequisites: EGR 115, MAT 121
 Corequisites: None
 This course introduces the theory and practice of plane surveying. Topics include measuring distances and angles, differential and profile leveling, compass applications, topography, and mapping. Upon completion, students should be able to use/care for surveying instruments, demonstrate field note techniques, and apply the theory and practice of plane surveying.

SRV 111 Surveying II 2 6 0 4
 Prerequisites: SRV 110
 Corequisites: None
 This course introduces route surveying and roadway planning and layout. Topics include simple, compound, reverse, spiral, and vertical curves; geometric design and layout; planning of cross-section and grade line; drainage; earthwork calculations; and mass diagrams. Upon completion, students should be able to calculate and lay out highway curves; prepare roadway plans, profiles, and sections; and perform slope staking.

SRV 112 Landscape Architectural Surveying 2 6 0 4
 Prerequisites: MAT 121
 Corequisites: None
 This course covers surveying techniques commonly used by landscape architects and contractors. Topics include boundary and topographic surveying. Upon completion students should be able to create boundary and topo maps and layout construction projects both on paper and in the field.

SRV 210 Surveying III 2 6 0 4
 Prerequisites: SRV 110
 Corequisites: None
 This course introduces boundary surveying, land partitioning, and calculations of areas. Topics include advanced traverses and adjustments, preparation of survey documents, and other related topics. Upon completion, students should be able to research, survey, and map a boundary.

SRV 220 Surveying Law 2 2 0 3
 Prerequisites: SRV 110
 Corequisites: None
 This course introduces the law as related to the practice of surveying. Topics include surveyors' responsibilities, deed descriptions, title searches, eminent domain, easements, weight of evidence, riparian rights, and other related topics. Upon completion, students should be able to identify and apply the basic legal aspects associated with the practice of land surveying.

SRV 230 Subdivision Planning 1 6 0 3
 Prerequisites: SRV 111, SRV 210, CIV 211
 Corequisites: None
 This course covers the planning aspects of residential subdivisions from analysis of owner and municipal requirements to plat layout and design. Topics include municipal codes, lot sizing, roads, incidental drainage, esthetic considerations, and other related topics. Upon completion, students should be able to prepare a set of subdivision plans.

SRV 240 Topography/Site Surveying 2 6 0 4
 Prerequisites: CIV 125 and SRV 110
 Corequisites: None
 This course covers topographic, site, and construction surveying. Topics include topographic mapping, earthwork, site planning, construction staking, and other related topics. Upon completion, students should be able to prepare topographic maps and site plans and locate and stake out construction projects.

SRV 260 Field and Office Practices 1 3 0 2
 Prerequisites: Completion of three semesters of the Surveying Technology program
 Corequisites: None
 This course covers surveying project management, estimating, and responsibilities of surveying personnel. Topics include record-keeping, starting and operating a surveying business, contracts, regulations, taxes, personnel management, and professional ethics. Upon completion, students should be able to understand the requirements of operating a professional land surveying business.

SRV 297 Seminar in Surveying Technology - - - 2
 Prerequisites: Varies, based on topic
 Corequisites: None
 This course provides an opportunity to explore areas of current interest in Surveying Technology. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

SUR 110 Introduction to Surgical Technology 3 0 0 3
 Prerequisites: None
 Corequisites: SUR 111
 This course provides a comprehensive study of the operative environment, professional roles, moral/legal/ethical responsibilities, and medical communications used in surgical technology. Topics include historical development, professional behaviors, medical terminology, interdepartmental/peer/relationships, operating room environment/safety, pharmacology, anesthesia, incision sites, and physiology of wound healing. Upon completion, student should be able to apply theoretical knowledge of the course topics to the operative environment.

SUR 111 Perioperative Patient Care 5 6 0 7
 Prerequisites: None
 Corequisites: SUR 110
 This course provides theoretical knowledge for the application of essential operative skills during the perioperative phase. Topics include surgical asepsis, sterilization/disinfection, and perioperative patient care. Upon completion, students should be able to demonstrate the principles and practices of aseptic technique, sterile attire, basic case preparation, and other relevant skills.

SUR 122 Surgical Procedures I 5 3 0 6
 Prerequisites: SUR 110, SUR 111
 Corequisites: SUR 123
 This course introduces a comprehensive study of surgical procedures in the following specialties: general, gastrointestinal, obstetrical/gynecology, urology, otorhinolaryngology, and plastics/reconstructive. Emphasis is placed on related surgical anatomy, pathology, and procedures thereby enhancing theoretical knowledge of patient care, instrumentation, supplies, and equipment. Upon completion, students should be able to correlate, integrate, and apply theoretical knowledge of the course topics.

SUR 123 Clinical Practice I 0 0 21 7
 Prerequisites: SUR 110, SUR 111
 Corequisites: SUR 122
 This course provides clinical experience with a variety of perioperative assignments to build upon skills learned in SUR 111. Emphasis is placed on the scrub and circulating roles of the surgical technologist including aseptic technique and basic case preparation for selected surgical procedures. Upon completion, students should be able to prepare, assist with, and dismantle basic surgical cases in both the scrub and circulating roles.

SUR 134 Surgical Procedures II 5 0 0 5
 Prerequisites: SUR 123
 Corequisites: None
 This course introduces orthopedic, neurosurgical, peripheral vascular, thoracic, cardiovascular, and ophthalmology surgical specialties. Emphasis is placed on related surgical anatomy, pathology, and procedures thereby enhancing theoretical knowledge of patient care, instrumentation, supplies, and equipment. Upon completion, students should be able to correlate, integrate, and apply theoretical knowledge of the course topics.

SUR 135 Clinical Practice II 0 0 12 4
 Prerequisites: SUR 123
 Corequisites: SUR 134, SUR 137
 This course provides clinical experience with a variety of perioperative assignments to build skills required for complex perioperative patient care. Emphasis is placed on greater technical skills, critical thinking, speed, efficiency, and autonomy in the operative setting. Upon completion, students should be able to function in the role of an entry-level surgical technologist.

SUR 137 Professional Success Preparation 1 0 0 1
 Prerequisites: SUR 123
 Corequisites: SUR 134, SUR 135
 This course provides job-seeking skills and an overview of theoretical knowledge in preparation for certification. Topics include test-taking strategies, resume preparation, and interviewing techniques. Upon completion, students should be able to prepare a resume, demonstrate appropriate interview techniques, and identify strengths and weaknesses in preparation for certification.

SUR 210 Advanced SUR Clinical Practice 0 0 6 2
 Prerequisites: SUR 137
 Corequisites: SUR 211
 This course is designed to provide individualized experience in advanced practice, education, circulating, and managerial skills. Emphasis is placed on developing and demonstrating proficiency in skills necessary for advanced practice. Upon completion, students should be able to assume leadership roles in a chosen specialty area.

SUR 211 Advanced Theoretical Concepts 2 0 0 2
 Prerequisites: SUR 137
 Corequisites: SUR 210
 This course covers theoretical knowledge required for extension of the surgical technologist role. Emphasis is placed on advanced practice in complex surgical specialties, educational methodologies, and managerial skills. Upon completion, students should be able to assume leadership roles in a chosen specialty area.

SWK 110 Introduction to Social Work 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course examines the historical development, values, orientation, and professional standards of social work and focuses on the terminology and broader systems of social welfare. Emphasis is placed on the various fields of practice including those agencies whose primary function is financial assistance, corrections, mental health, and protective services. Upon completion, students should be able to demonstrate an understanding of the knowledge, values, and skills of the social work professional.

SWK 113 Working with Diversity 3 0 0 3
 Prerequisites: None
 Corequisites: None
 This course examines and promotes understanding, sensitivity, awareness, and knowledge of human diversity. Emphasis is placed on professional responsibilities, duties, and skills critical to multicultural human services practice. Upon completion, students should be able to integrate and expand knowledge, skills, and cultural awareness relevant to diverse populations.

T

TNE 111 Campus Networks I 2 3 0 3

Prerequisites: None
Corequisites: None

This course is designed to introduce the fundamentals of data/computer networks. Topics include an overview of data communication standards, protocols, equipment, and how they are integrating into network topologies and systems. Upon completion, students should be able to demonstrate an understanding of telecommunication and networking.

TNE 121 Campus Networks II 2 3 0 3

Prerequisites: TNE 111
Corequisites: None

This course covers the operating systems and topologies associated with networking. Topics include the various operating systems used in networking and the topologies explained on a network to network level. Upon completion, students should be able to use and explain operating systems and topologies. This course covers LANs, TCP/IP, switches, and routers.

TNE 193 Selected Topics in Telecommunications and Networking - - - 3

Prerequisites: Varies, based on topic
Corequisites: None

This course provides an opportunity to explore areas of current interest in Telecommunications and Network Engineering Technology. Emphasis is placed on subject matter appropriate to telecommunications and networking. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

TNE 231 Data Communications over WAN 2 3 0 3

Prerequisites: TNE 111, TNE 121
Corequisites: None

This course is designed to introduce wide area networking. Topics include LAN-to-LAN, LAN-to-host, LAN-to-WAN connectivity, X.25 protocol, packet switching networks, and network topologies explained on a WAN basis. Upon completion, students should be able to demonstrate an understanding of wide area networking. Emphasis will be placed on understanding LAN-to-WAN interfaces.

TNE 235 Internet Routing 3 3 - 4

Prerequisites: TNE 231
Corequisites: None

This course introduces the technologies and protocols for Internet routing. Topics include Internet addressing, interior gateway protocols, exterior gateway protocols, and advanced routing protocols. Upon completion, students should be able to demonstrate an understanding of Internet routing.

TNE 241 Network Management 2 3 0 3

Prerequisites: TNE 121
Corequisites: None

This course introduces theory and provides experience in analyzing and troubleshooting telecommunication network systems. Topics include physical issues, software debugging, viruses, e-mail, traffic management, server and router configuration, documentation, and equipment use. Upon completion, students should be able to identify and resolve telecommunication network problems.

TNE 242 Data Network Design 2 3 0 3

Prerequisites: TNE 235
Corequisites: None

This course covers the principles of the design of LAN and WAN hierarchy through the terminal. Topics include OSI model, static and dynamic addressing, network terminal management, bandwidth requirements, Internet requirements, redundancy, and broadband versus baseband systems. Upon completion, students should be able to design a hierarchical network system to board design. Emphasis will be placed on prior knowledge on LAN/WAN interfaces and components.

TNE 245 Network Perimeter Security 2 3 - 3

Prerequisites: TNE 121
Corequisites: None

This course introduces a variety of ways to implement security into network designs and upgrades. Topics include securing the network through the use of access lists, routers, firewalls, Ipchains, and stateful packet filtering. Upon completion, students should be able to demonstrate a variety of techniques to harden the network from outside threats. This course covers security protocols and IPsec, VPNs, and firewall routers.

TNE 250 Telecommunication Networks 2 3 0 3

Prerequisites: None
Corequisites: None

This course introduces the principal elements and theory (both analog and digital) of telecommunication networking systems. Topics include system network overview, subscriber loops, network testing and measurement, wiring, network transmission techniques synchronization and analysis, switching and signaling, and related applications. Upon completion, students should be able to demonstrate knowledge of the concepts associated with telecommunication network systems. Emphasis will be placed on voice and data communication integration. This course covers the current public switch telephone system, SONET, and SS7.

TNE 251 Advanced Telecommunication Networks 2 3 0 3

Prerequisites: TNE 250
Corequisites: None

This course is a continuation of TNE 250 and introduces advanced concepts associated with telecommunication network systems. Topics include waveform coding, emerging transmission techniques and analysis, advanced switching system architectures, personal communication systems, and related topics and applications. Upon completion, students should be able to demonstrate knowledge of the concepts associated with advanced telecommunication network systems. This course covers voice-over-IP and cell phones.

TNE 261 Internet Development 2 3 0 3

Prerequisites: TNE 111, TNE 121
Corequisites: None

This course is designed to introduce Internet concepts. Topics include Internet layer operation, IP routing and addresses and operations. TCP-IP operations and ports, firewalls, gateways, e-mail, and web-site development. Upon completion, students should be able to demonstrate an understanding of the course concepts. This course covers HTML and TCP/IP application protocols.

W

**WEB 110 Internet/
Web Fundamentals** 2 2 0 3

Prerequisites: None

Corequisites: None

This course introduces basic markup language, various navigational tools and services of the Internet. Topics include creating web pages, using internet protocols, search engines, file compression/decompression, FTP, email, listservers, and other related topics. Upon completion, students should be able to deploy a website created with basic markup language, retrieve/decompress files, email, FTP, and utilize other internet tools. Topics include HTML and XHTML.

WEB 111 Intro to Web Graphics 2 2 0 3

Prerequisites: None

Corequisites: None

This course is the first of two courses covering the creation of web graphics, addressing problems peculiar to WWW display using appropriate software. Topics include web graphics file types, type conversion, RGB color, the browser-safe palette, elementary special effects, image maps, and other related topics. Upon completion, students should be able to create graphics such as banners buttons, backgrounds, and other graphics for Web pages. Students will learn transparency, animation, slicing, data-driven graphics, and will develop an understanding of the principles of web design.

**WEB 115 Web Markup
and Scripting** 2 2 0 3

Prerequisites: WEB 110 or CIS 172 or CIS 115 or CSC 151

Corequisites: None

This course introduces client-side Internet programming using the current W3C-recommended presentation markup language and supporting elements. Topics include site management and development, markup elements, stylesheets, validation, accessibility, standards, browsers, and basic JavaScripting. Upon completion, students should be able to hand-code web pages with various media elements according to current markup standards and integrate them into websites. Students will also be exposed to industry standard development tools and practices with these technologies.

**WEB 120 Introduction to
Internet Multimedia** 2 2 0 3

Prerequisites: WEB 111 or GRD 152 or ITN 110

Corequisites: None

This is the first of two courses covering the creation of internet multimedia. Topics include internet multimedia file types, file type conversion, acquisition of digital audio/video, streaming audio/video and graphics animation plug-in programs and other related topics. Upon completion, students should be able to create internet multimedia presentations utilizing a variety of methods and applications.

WEB 140 Web Development Tools 2 2 0 3

Prerequisites: None

Corequisites: None

This course provides an introduction to web development software suites. Topics include the creation of web sites and applets using web development software. Upon completion, students should be able to create entire web sites and supporting applets.

WEB 180 Active Server Pages 2 2 0 3

Prerequisites: CIS 115 or WEB 115 or CSC 160

Corequisites: None

This course introduces Active Server Programming. Topics include Jscript, VBScript, HTML forms processing, and the Active Server Object Model. Upon completion, students should be able to create and maintain Active Server applications. Current trends in ASP, to include ASP.Net will be taught.

WEB 182 PHP Programming 2 2 0 3

Prerequisites: WEB 115 or CIS 115 or CSC 160

Corequisites: None

This course introduces students to the server-side, HTML-embedded scripting language PHP. Emphasis is placed on programming techniques required to create dynamic web pages using PHP scripting language features. Upon completion, students should be able to design, code, test, debug, and create a dynamic web site using the PHP scripting language.

WEB 183 Perl Programming 2 2 0 3

Prerequisites: WEB 115 or CIS 115 or CSC 160

Corequisites: None

This course introduces students to the Perl Programming language. Topics include programming techniques using CGI script, input/output operations, sequence, iteration, selection, arithmetic operations, subroutines, modules, integrating database, pattern matching and other related topics. Upon completion, students should be able to design, code, test, and debug Perl language programs.

**WEB 185 ColdFusion
Programming** 2 2 0 3

Prerequisites: CIS 115

Corequisites: None

This course introduces ColdFusion Programming. Topics include installing a ColdFusion development environment, using CFQUERY tags to send and receive database information, creating and displaying a form, and other related topics. Upon completion, students should be able to design, code, test, and debug using a ColdFusion environment.

WEB 186 XML Technology 2 2 0 3

Prerequisites: CIS 115; and WEB 110 or CIS 172

Corequisites: None

This course is designed to introduce students to XML and related internet technologies. Topics include extendible style language (XSL) document object model (DOM), extendible stylesheet language transformation (XSLT), and simple object access protocol (SOAP). Upon completion, students should be able to create a complex XML document.

**WEB 187 Wireless/Internet
Programming** 2 2 0 3

Prerequisites: CIS 115

Corequisites: None

This course introduces the Internet and Web development for portable wireless devices with a focus on practical business-related applications. Topics include WAP, WML, XHTML, XML, and wireless internet and mobile business practices and techniques. Upon completion, students should be able to develop and wirelessly enable websites and business applications for use on portable electronic devices.

WEB 210 Web Design 2 2 0 3
 Prerequisites: WEB 111 or ITN 110; and WEB 140 or ITN 140
 Corequisites: None
 This course introduces intermediate to advanced web page design techniques. Topics include effective use of graphics, fonts, colors, navigation tools, advanced markup language elements, as well as a study of bad design techniques. Upon completion, students should be able to employ advanced design techniques to create high impact and highly functional web pages. Students will develop a working knowledge of using CSS and employing them in a website.

WEB 211 Advanced Web Graphics 2 2 0 3
 Prerequisites: WEB 110; and WEB 111 or ITN 110
 Corequisites: None
 This course is the second of two courses covering web graphics. Topics include graphics acquisition using scanners and digital cameras, graphics optimization, use of masks, advanced special effects, GIF animation, and other related topics. Upon completion, students should be able to create graphics optimized for size, graphic file type, properly converted from digitized sources and create useful animated graphics. Students will learn to manipulate, correct, and enhance digital photographic images.

WEB 215 Advanced Markup and Scripting 2 2 0 3
 Prerequisites: WEB 115
 Corequisites: None
 This course covers advanced programming skills required to design Internet applications. Emphasis is placed on programming techniques required to support network applications. Upon completion, students should be able to design, code, debug, and document network-based programming solutions to various real-world problems using an appropriate programming language.

WEB 220 Advanced Multimedia 2 2 0 3
 Prerequisites: WEB 120 or ITN 120
 Corequisites: None
 This is the second of two courses covering Internet multimedia. Topics include use of advanced Internet multimedia applications. Upon completion, students should be able to create interactive Internet multimedia presentations.

WEB 230 Implementing Web Servers 2 2 0 3
 Prerequisites: NET 110 or NET 125
 Corequisites: None
 This course covers website and web server architecture. Topics include installation, configuration, administration, and security of web servers, services and sites. Upon completion, students should be able to effectively manage the web services deployment lifecycle according to industry standards.

WEB 250 Database Driven Websites 2 2 0 3
 Prerequisites: DBA 110 and WEB 140
 Corequisites: None
 This course introduces dynamic (database-driven) website development. Topics include the use of basic database CRUD statements (create, read, update and delete) incorporated into web applications, as well as in software architecture principles. Upon completion, students should be able to design and develop database driven web applications according to industry standards.

WEB 260 E-Commerce Infrastructure 2 2 0 3
 Prerequisites: WEB 250; and WEB 180 or ITN 120
 Corequisites: None
 This course introduces the concepts and tools to implement electronic commerce via the Internet. Topics include application and server software selection, securing transactions, use and verification of credit cards, publishing of catalogs, documentation, and site administration. Upon completion, students should be able to setup a working e-commerce Internet web site.

WEB 285 Emerging Web Technologies 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course will explore, discuss, and research emerging technologies in the web arena. Emphasis is placed on exposure to up-and-coming technologies relating to the web, providing hands-on experience, and discussion of practical implications of these emerging fields. Upon completion, students should be able to articulate issues relating to these technologies.

WEB 289 Internet Technologies Project 1 4 0 3
 Prerequisites: WEB 230 and WEB 250
 Corequisites: None
 This course provides an opportunity to complete a significant Web technologies project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, documentation, installation, testing, presentation, and training. Upon completion, students should be able to complete an Internet project from the definition phase through implementation.

WLD 110 Cutting Processes 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces oxy-fuel and plasma-arc cutting systems. Topics include safety, proper equipment setup, and operation of oxy-fuel and plasma-arc cutting equipment with emphasis on straight line, curve and bevel cutting. Upon completion, students should be able to oxy-fuel and plasma-arc cut metals of varying thickness.

WLD 111 Oxygen-Fuel Welding 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces the oxy-fuel welding process. Topics include safety, proper equipment setup, and operation of oxy-fuel welding equipment with emphasis on bead application, profile, and discontinuities. Upon completion, students should be able to oxy-fuel weld fillets and grooves on plate and pipe in various positions.

WLD 112 Basic Welding Processes 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course introduces basic welding and cutting. Emphasis is placed on beads applied with gases, mild steel fillers, and electrodes and the capillary action of solder. Upon completion, students should be able to set up welding and oxy-fuel equipment and perform welding, brazing, and soldering processes.

WLD 115 SMAW (Stick) Plate 2 9 0 5
 Prerequisites: None
 Corequisites: None
 This course introduces the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in various positions with SMAW electrodes. Upon completion, students should be able to perform SMAW fillet and groove welds on carbon plate with prescribed electrodes.

WLD 115a SMAW (Stick) Plate-Part 1 2 6 0 4
 Prerequisites: None
 Corequisites: None
 This course is the first half of WLD 115 (see the description for WLD 115 above).

WLD 115b SMAW (Stick) Plate-Part 2 0 3 0 1
 Prerequisites: WLD 115a
 Corequisites: None
 This course is the second half of WLD 115 (see the description for WLD 115 above).

WLD 116 SMAW (Stick) Plate/Pipe 1 9 0 4
 Prerequisites: WLD 115
 Corequisites: None
 This course is designed to enhance skills with the shielded metal arc (stick) welding process. Emphasis is placed on advancing manipulative skills with SMAW electrodes on varying joint geometry. Upon completion, students should be able to perform groove welds on carbon steel with prescribed electrodes in the flat, horizontal, vertical, and overhead positions.

WLD 116a SMAW (Stick) Plate/Pipe-Part 1 1 6 0 3
 Prerequisites: WLD 115
 Corequisites: None
 This course is the first half of WLD 116 (see the description for WLD 116 above).

WLD 116b SMAW (Stick) Plate/Pipe-Part 2 0 3 0 1
 Prerequisites: WLD 115, WLD 116a
 Corequisites: None
 This course is the second half of WLD 116 (see the description for WLD 116 above).

WLD 121 GMAW (MIG) FCAW/Plate 2 6 0 4
 Prerequisites: None
 Corequisites: None
 This course introduces metal arc welding and flux core arc welding processes. Topics include equipment setup and fillet and groove welds with emphasis on application of GMAW and FCAW electrodes on carbon steel plate. Upon completion, students should be able to perform fillet welds on carbon steel with prescribed electrodes in the flat, horizontal, and overhead positions.

WLD 121a GMAW (MIG) FCAW/Plate-Part 1 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course is the first half of WLD 121 (see description above).

WLD 121b GMAW (MIG) FCAW/Plate-Part 2 1 3 0 2
 Prerequisites: WLD 121a
 Corequisites: None
 This course is the second half of WLD 121 (see description above).

WLD 122 GMAW (MIG) Plate/Pipe 1 6 0 3
 Prerequisites: WLD 121
 Corequisites: None
 This course is designed to enhance skills with the gas metal arc (MIG) welding process. Emphasis is placed on advancing skills with the GMAW process making groove welds on carbon steel plate and pipe in various positions. Upon completion, students should be able to perform groove welds with prescribed electrodes on various joint geometry.

WLD 131 GTAW (TIG) Plate 2 6 0 4
 Prerequisites: None
 Corequisites: None
 This course introduces the gas tungsten arc (TIG) welding process. Topics include correct selection of tungsten, polarity, gas, and proper filler rod with emphasis placed on safety, equipment setup, and welding techniques. Upon completion, students should be able to perform GTAW fillet and groove welds with various electrodes and filler materials.

WLD 131a GTAW (TIG) Plate-Part 1 1 3 0 2
 Prerequisites: None
 Corequisites: None
 This course is the first half of WLD 131 (see description above).

WLD 131b GTAW (TIG) Plate-Part 2 1 3 0 2
 Prerequisites: WLD 131a
 Corequisites: None
 This course is the second half of WLD 131 (see description above).

WLD 132 GTAW (TIG) Plate/Pipe 1 6 0 3
 Prerequisites: WLD 131
 Corequisites: None
 This course is designed to enhance skills with the gas tungsten arc (TIG) welding process. Topics include setup, joint preparation, and electrode selection with emphasis on manipulative skills in all welding positions on plate and pipe. Upon completion, students should be able to perform GTAW welds with prescribed electrodes and filler materials on various joint geometry. Orbital welding fundamentals will be introduced during this course.

WLD 141 Symbols and Specifications 2 2 0 3
 Prerequisites: None
 Corequisites: None
 This course introduces the basic symbols and specifications used in welding. Emphasis is placed on interpretation of lines, notes, welding symbols, and specifications. Upon completion, students should be able to read and interpret symbols and specifications commonly used in welding.

WLD 261 Certification Practices 1 3 0 2

Prerequisites: WLD 115, WLD 121, WLD 131

Corequisites: None

This course covers certification requirements for industrial welding processes. Topics include techniques and certification requirements for prequalified joint geometry. Upon completion, students should be able to perform welds on carbon steel plate and/or pipe according to applicable codes.

WLD 262 Inspection and Testing 2 2 0 3

Prerequisites: None

Corequisites: None

This course introduces destructive and non-destructive testing methods. Emphasis is placed on safety, types and methods of testing, and the use of testing equipment and materials. Upon completion, students should be able to understand and/or perform a variety of destructive and non-destructive testing processes.

ACADEMIC CREDENTIALS

ADMINISTRATION

Dr. Stephen C. Scott

PRESIDENT

B.A., Economics, Clemson University
M.A., Administration and Supervision, Clemson University
Ed.D., Vocational and Technical Education, Clemson University

Dr. Lawrence W. Appleton, *Associate Vice President
College Development*

A.S., Computer Technology/Business Administration,
Greenville Technical College
B.S., Business Administration, Limestone College
M.A., Management, Clemson University
Ph.D., Management Information Systems, Kennedy-Western
University

Denise H. Barton, *Director of Human Resources
College Development*

B.S. Business Administration, Mississippi College
M.B.A., Business Administration, Campbell University

Dr. John B. Boone, *Director*

Institutional Effectiveness, Planning and Research
B.A., History, Guilford College
M.A., Political Science, North Carolina State University
Ed.D., Adult and Community College Education, North Carolina
State University

Otis Morton Congleton, *Executive Director
Wake Technical Community College Foundation, Inc.*
B.A., Geography, East Carolina University

Carol E. Himes, AIA, *Facility Officer*

B.S., Architecture, University of Virginia
M.A., Architecture, North Carolina State University

Dr. Robert E. Ireland, *Vice President*

Student Services
B.A., History, University of Maine
M.A., American Civilization, University of Wyoming
Ph.D., History, University of Maine

Stephanie S. Lake, *Director of Development*

Wake Technical Community College Foundation, Inc.
B.A., Theatre Arts, Virginia Polytechnic Institute and State
University

Dr. Darryl D. McGraw, *Chief Information Officer
Information Technology Services*

A.A. College Transfer, Southeastern Community College
B.S., Computer Science, North Carolina State University
M.B.A., Business/Mgmt., Campbell University
Ed.D., Adult and Community College Education, North
Carolina State University

Gerald Mitchell, *Vice President*

Continuing Education Services
B.S., Behavioral Science – Criminal Justice, New York Institute
of Technology
M.S., Social Science, Long Island University

Sherry M. Mitchell, *Director*

Communications and Marketing
B.A., Graphic Design, North Carolina State University

William Ward Preston, CPA, *Vice President*

Business and Finance
B.S., Business Administration, Georgia Southwestern College

Samuel Thomas Rhodes, *Executive Vice President*

B.A., Chemistry, University of North Carolina
M.S., Zoology, Auburn University

Bryan Ryan, *Director*

Planning and Research, College Development
B.A., English, Kalamazoo College
M.A., TESOL, Eastern Michigan University

Marla L. Tart, *Accounting Manager*

Accounting Services
A.A.S., Accounting, Wake Technical Community College

Debra Slack Wallace, *Business Manager*

Business Services
B.A., Liberal Arts, St. Andrews Presbyterian College

Benjamin Robert White, Jr., P.E., *Vice President Curriculum
Education Services*

B.S., Electrical Engineering, Virginia Polytechnic Institute
M.S., Electrical Engineering, Old Dominion University

Roy Stanley Wood, *Chief Business Officer*

A.A., Business Administration, Louisburg College
B.S.B.A., Business Administration, East Carolina University

Deans

Sandra Dietrich, Dean
Business Technologies Division
Curriculum Education Services
B.S., M.S., Business Education, Robert Morris University

Dr. D. Gayle Greene, Dean
Arts, Humanities, and Social Sciences Division
Curriculum Education Services
B.A., Christianity; Speech and Drama Art, Mercer University
M.Div., Divinity, Southeastern Baptist Theological Seminary
Ed.D., Higher Education Administration, North Carolina State University

Robert H. Grove, Jr., Dean
Computer & Engineering Technologies Division
Curriculum Education Services
A.A.S., Computer Engineering Technology, Wake Technical College
B.S., Computer Science, North Carolina Central University

Dianne B. Hinson, Dean
Mathematics and Sciences Division
Curriculum Education Services
B.S., Biology, Longwood College
M.A., Biology, Appalachian State University

Dr. Janet Hobbs, Dean
Academic Support Division
Curriculum Education Services
B.A., English, Bloomfield College
M.A., English, Virginia Polytechnic Institute
Ed.D., Administration Level III, Campbell University

Rita H. Jerman, Dean/College Registrar
Student Services
B.A., English, University of North Carolina
M.Ed. Training and Development, North Carolina State University

Wayne A. Loots, CPA, Dean
Business and Industry Division
Continuing Education Services
B.B.A., General Business, University of Wisconsin

Alisa Nagler, Dean
Health Sciences Division
Curriculum Education Services
B.S., Human Service Studies, Cornell University
M.A., Sociology, East Carolina University
J.D., New England School of Law

Dr. Paul A. Norman, Dean of Students
Student Services
B.S., Business Administration, Elizabeth City State University
M.A., Student Personnel, North Carolina Central University
Ed.D., Adult and Community College Education, North Carolina State University

James A. Roberson, Dean
Academic Services at Western Wake Campus
Curriculum Education Services
B.A., Radio and Television, Shaw University
M.L.S., Library and Information Science, North Carolina Central University

John Saporilas, Dean
Admissions and Counseling Services
Student Services
B.S., History, East Carolina University
M.A., Counselor Education, East Carolina University

Lourdes O. Shelley, Dean
Basic Skills Division
Continuing Education Services
B.A., Psychology, University of Puerto Rico
M.S., Adult and Community College Education, North Carolina State University

Witold Sieradzan, Dean
Special Projects
Curriculum Education Services
B.A., Mathematics, State University of New York
M.S., Computer Science, California State University

Sammie C. Thornton, Dean
Vocational Technology Division
Curriculum Education Services
Diploma, Radio and TV, Wake Technical Community College
A.G.E., General Education, Wake Technical Community College
A.A.S., Electronic Servicing Technology, Wake Technical Community College
B.A.S., Applied Science, Campbell University
Certified Electronic Technician

Martha O. Williams, Dean
Evening Division
Continuing Education Services
B.A., English – Writing, East Carolina University
M.A., Education, East Carolina University

Curriculum Education Faculty

Melania Ibelia Aguirre-Rabon, *Department Head – Foreign Language*

Arts, Humanities, and Social Sciences Division
A.A.S., Associate in Arts, Montreat-Anderson College
B.S., Hospitality Management, Appalachian State University
B.A., Spanish, Appalachian State University
M.A., Spanish, University of Georgia

Diane Albahrawy, *Instructor – Business Administration Business Education Services Division*

B.A., Political Science, North Carolina State University
J.D., Creighton University

Mary Lida Alexander, *Department Head - Physical Education/Health*

Mathematics and Sciences Division
B.S., Physical Education, University of North Carolina
M.A., Health and Physical Education, University of North Carolina

Willeena Algood, R.N., *Instructor - Nursing Health Sciences Division*

Diploma, Nursing, Beth-El School of Nursing, Colorado Springs
B.S.N., Nursing, North Carolina Central University
M.Ed., Nursing, North Carolina State University

Deedee Allen, *Instructor – Chemistry Mathematics and Sciences Division*

B.S., Chemistry & Chemistry Education, Randolph-Macon Woman's College
Ph.D., Chemistry & Chemistry Education, North Carolina State University

Phyllis Anne Allen, *Instructor - Pre-Curriculum Mathematics Academic Support Division*
B.S., Education, University of Florida

Leonard Anthony Amico, *Instructor – BioNetwork Learning Center*

Engineering Technology Division
B.S., Forest Biology, SUNY College of Environmental Science and Forestry
M.S., Environmental and Forest Biology, SUNY College of Environmental Science and Forestry

Anthony Anderson, *Instructor – Welding Technology Vocational Technology Division*

A.G.E., General Education, Wake Technical Community College

Erin C. Anderson, *Instructor – Spanish Arts, humanities, and Social Sciences Division*
B.A., Literature/Writing, University of California

Mary E. Anderson, *Instructor - Mathematics Mathematics and Sciences Division*

B.S., Mathematics, Campbell University
M.S., Applied Mathematics, North Carolina State University

Kimberly Hale Andreaus, *Instructor - Human Services Technology*

Health Sciences Division
B.S., M.S.W., Social Work, Florida State University

John Annis, *Instructor, Criminal Justice Business Education Services Division*

B.A., Psychology, Tennessee Temple University
M.P.A., Public Administration, North Carolina State University

Dr. Joel T. Argote, *Instructor - French Arts, Humanities, and Social Sciences Division*

B.A., French, Louisiana State University
M.Ed., Secondary Education, University of Arkansas
M.A., Ph.D., Romance Languages, University of North Carolina

Kevin Douglas Atkinson, *Instructor-Pre-Curriculum Mathematics*

Academic Support Division
B.A., Physics, North Carolina State University

Gail Austin, *Instructor – Early Childhood Business Education Services Division*

B.A., Early Childhood, University of North Carolina
M.S., Home economics, East Carolina University

Patricia Avery, *Instructor - English Arts, Humanities, and Social Sciences Division*

B.S., M.A., English, East Carolina University

Vickie W. Baggett, R.N., *Instructor - Nursing Health Sciences Division*

B.S.N., Nursing, North Carolina Central University
M.Ed., Health Professions Education, North Carolina State University

William Medardo Bagliani, *Instructor-History Arts, Humanities and Social Sciences Division*

B.S.B.A., Business Administration, East Carolina University
M.A., History, North Carolina State University

John Bakken, *Instructor – Mathematics Mathematics & Sciences Division*

B.S., Mathematics, Armstrong State College
M.S., Mathematics, University of North Carolina

Stella S. Baldwin, *Instructor - Psychology Arts, Humanities, and Social Sciences Division*

B.A., Psychology, University of North Carolina
M.A., Psychology, Florida Atlantic University

Kim Balkcum, *Instructor - Psychology Arts, Humanities, and Social Sciences Division*

B.S., Criminal Justice, University of North Carolina
M.Ed., Counseling, University of North Carolina

Dr. Donald Ball, *Instructor - English Arts, Humanities, and Social Sciences Division*

B.A., English, College of William and Mary
M.A., English, East Carolina University
Ph.D., American Literature, University of Florida

Mary Beth Bamforth, *Instructor – English and Tech-Prep Liaison*
Arts, Humanities, and Social Sciences Division
B.A., English, Atlantic Christian College
M.A., English, East Carolina University

Ryan M. Barbour, *Instructor - English*
Arts, Humanities, and Social Sciences Division
B.A., French Language and Literature, North Carolina State University
M.A., English, North Carolina State University

Virginia Sue M. Barile, *Instructor - English*
Arts, Humanities, and Social Sciences Division
A.B., Journalism, University of North Carolina
M.Ed., Adult and Community College Education, North Carolina State University

Lorie C. Barnes, *Instructor - Early Childhood Associate*
Business Technologies Division
B.S., Child Development, East Carolina University
M.A., Education, University of North Carolina

Carrie Elaine Stock Bartek, *Instructor-Geology*
Mathematics and Sciences Division
B.S., General, Penn State University
M.A., Geology, Rice University

Dr. Eugene R. Bartlett, *Instructor - Biology*
Mathematics and Sciences Division
A.A., Education, Potomac State College
B.A., Secondary Education, Shepherd College
M.S., Biology, Frostburg State University
Ph.D., Biological Sciences, University of Delaware

Burnette L. Bell, *Assistant Librarian (Health Sciences)*
Library Services Division
B.A., Anthropology, College of William and Mary
M.L.S., Library Science, University of North Carolina

Susan Harrah Bennett, *Instructor-Accounting*
Business Technologies Division
B.S., Mechanical Engineering, Morris Harvey College
M.B.A., Business Administration, Meredith College

Deborah S. Benton, *Instructor - Mathematics*
Mathematics and Sciences Division
B.S., Mathematics, East Carolina University
M.A., Education/Mathematics, East Carolina University

Angela L. Bequette, *Department Head - Information Systems*
Computer & Engineering Technologies Division
B.S., Business Administration, Western Michigan University
M.S., Business Administration, California State University

Robert P. Berman, *Instructor - Pre-Curriculum English*
Academic Support Division
B.A., English, Radford University
M.A., Linguistics, University of North Carolina

Jack Edward Bernhardt, *Instructor-Anthropology*
Arts, Humanities and Social Sciences Division
B.A., Anthropology, Kent State University
M.A., Sociology and Anthropology, Kent State University
M.A., Philosophy, Columbia University

Alden Berry, *Instructor – Criminal Justice Technology*
Business Technologies Division
B.S., Behavioral Science – Criminal Justice, New York Institute of Technology
M.B.A., General Management, Dowling College

Kenneth Betancourt, *Department Head - Automotive Systems*
Technology
Vocational Technology Division
Diploma, Automotive Mechanics, Wake Technical Community College
A.G.E., General Education, Wake Technical Community College
ASE Certified Master Automobile Technician

Charlotte E. Blackwell, R.N., *Instructor - Nursing*
Health Sciences Division
A.A.S., Nursing, University of South Carolina
B.S., Nursing, North Carolina Wesleyan College
M.S., Education, North Carolina State University

Toni M. Bland, RDH, *Instructor - Dental Hygiene*
Health Sciences Division
B.S., Dental Hygiene, University of North Carolina
M.Ed., Health Occupations, North Carolina State University

Phyllis Blenkhorn, R.T.-R., *Instructor - Radiography*
Health Sciences Division
B.A., Biology, University of North Carolina
Certified Medical Radiographer (A.R.R.T.)

Nancy Blount, *Instructor - English as a Foreign Language*
Academic Support Division
B.S., English Education, Virginia Commonwealth University
M.E., Adult Education, Virginia Commonwealth University

Elizabeth Blue, *Instructor – Chemistry*
Mathematics & Sciences Division
B.S., Chemical Engineering, North Carolina State University
Ph.D., Chemistry & Chemistry Education, North Carolina State University

Jacqueline L. Bonk, *Instructor – Business Administration/Human*
Resources Management
Business Technologies Division
B.S., Business Management, Metropolitan State College
M.B.A., Business Administration, Meredith College

Joni Hoke Boone, *Instructor/Coordinator*
Individualized Learning Center
B.A., English, Western Carolina University
M.A., English, Appalachian State University

Timothy P. Botta, *Instructor-English*
Arts, Humanities and Social Sciences Division
A.A., University Transfer, St.Petersburg College
B.A., English, University of South Florida
M.A., English, North Carolina State University

Susane Boukamel, *Instructor – English as a Foreign Language*
Academic Support Division
B.A., Social Sciences, SUNY – Stony Brook
M.A., Linguistics/Spanish, Georgetown University
Master's certification in Reading, Loyola University of Chicago

Michael Stuart Bowen, *Instructor – Biology*
Health Sciences Division
B.S., History, Wake Forest University
M.S., Biology, Wake Forest University

Joshua Bowers, *Instructor – Mathematics*
Mathematics & Sciences Division
A.A.S., Illinois Central College
B.S., Mathematics, Northern Illinois University
M.S., Mathematics, Northern Illinois University

Melinda Caron Box, *Instructor-Chemistry*
Mathematics and Sciences Division
B.S., Chemistry, Virginia Polytechnic Institute and State University
M.Ed., Science Education, North Carolina State University

Kimberly Blue Breivogel, *Instructor – Psychology*
Arts, Humanities, and Social Sciences Division
B.A., M.A., Psychology, Appalachian State University
M.S., Counseling, University of North Carolina

Roger Dale Brock, *Instructor – Heavy Equipment and Transport*
Technology
Vocational Technology Division
Diploma, Automotive Mechanics, Southeastern Community College
AAS, Heavy Equipment & Transport Technology, Wake Technical Community College

Jane Ann Broden, *Instructor – Hotel and Restaurant*
Management and Culinary Technology
Business Technologies Division
B.A., Spanish, Indiana University

Tammy L. Brown, *Instructor-Medical Assisting*
Health Sciences Division
A.A.S., Medical Assisting Technology, Pitt Community College

Robert Bucklin, *Instructor – Computer Programming*
Computer & Engineering Technologies Division
B.S., Mechanical Engineering Technology, University of Maryland
M.S., Computer Science, Hood College

Flynn Buckner, *Instructor – Nursing*
Health Sciences Division
A.S., Associate in Science, Louisburg College
B.S., Psychology, Virginia Commonwealth University
B.S., Nursing, Johns Hopkins University
M.S., Nursing, East Carolina University

Benita Adoree Budd, *Instructor-English*
Arts, Humanities, and Social Sciences Division
B.A., Literature, Eckerd College
A.M., English, University of Illinois at Urbana

David Tron Buff, *Instructor – History*
Arts, Humanities, and Social Sciences Division
B.A., History, North Carolina State University
M.A., Higher Education, Appalachian State University

Cavella M. Bullard, *Instructor – French*
Arts, Humanities, and Social Sciences Division
B.A., French, Wake Forest University
M.A., French, Middlebury College

Charles (Chuck) I. Bunn, Jr., CPA, CFE, *Department*
Head – Accounting
Business Technologies Division
B.A., Accounting, Duke University
M.A.C., Accounting, North Carolina State University

Yvonne M. Burdick, *Instructor-Individualized Learning Center*
A.A.S., Paralegal Technology, Fayetteville Technical Community College
B.A.S., Paralegal Technology, Methodist College

Cheryl A. Burk, *Instructor-Pre-Curriculum Reading*
Academic Support Division
B.S.Ed., Elementary Education, University of Missouri, Columbia
M.Ed., Curriculum Instruction, University of Missouri, Columbia

Kirsten M. Burkart, *Instructor – English*
Arts, Humanities, and Social Sciences Division
B.S., Political Science, East Tennessee State University
M.A., English, East Tennessee State University

Analemma Leia Burrows, *Instructor-Mathematics*
Mathematics and Sciences Division
B.S., Self-Designed, University of the Pacific
M.S., Mathematics, North Carolina State University

Teresa Dughi Burt, *Instructor-Nursing*
Health Sciences Division
BSN, Nursing, East Carolina University

Sloan (Bud) M. Burton, *Department Head – Architectural*
Technology and Landscape Architecture Technology
Engineering Technology Division
B.A., Environmental Design in Architecture, North Carolina State University

Carolyn Byrd, *Instructor, Nursing*
Health Sciences Division
B.A., Psychology, Shaw University

David O. Card, *Instructor-Architectural Technology*
Engineering Technology Division
B.S., Environmental Design/Architecture, North Carolina State University

Bruce Cantrell, *Instructor – Air Conditioning, Heating &*
Refrigeration
Vocational Education Division
A.A.S., HVAC, Fayetteville Technical Community College

Beverly Carapelle, *Instructor – History*
Arts, Humanities & Social Sciences Division
B.A., History, North Carolina Wesleyan College
M.A., History, East Carolina University

Robert Carawon, *Instructor – Information Systems*
Computer & Engineering Technologies Division
B.S., Physics, East Carolina University
M.A., Physics, East Carolina University

Diane Cardamone, R.N., *Department Head – Nursing Assistant*
Health Sciences Division
B.S.N., Nursing, Western Carolina University
M.S.N., Nursing, University of North Carolina

Gloria G. Carino, *Instructor/Coordinator – Math Center Individualized Learning Center*
B.A., Mathematics, University of the East
M.A.T., Mathematics, University of the East

Marilyn M. Carney, *Serials Librarian Library Services Division*
B.S., Biology, Virginia Union University
M.S., Library Science, University of North Carolina

Joseph Thomas Carroll, *Instructor – Computer Engineering Technology Engineering Technology Division*
B.A., Electrical Engineering, City College of New York
M.S., Electrical Engineering, Syracuse University
M.A., Liberal Studies, Duke University

Elizabeth Castellow, *Instructor – Spanish Arts, Humanities & Social Sciences Division*
B.A., Spanish, Meredith College
M.A., Romance Languages, University of North Carolina

Miranda Dawn Cave, *Instructor-Pre-Curriculum Mathematics Academic Support Division*
B.S., Mathematics, Wake Forest University
M.S., Mathematics, North Carolina State University

Dr. Frank Guangyu Chao, *Instructor – Computer Programming Computer & Engineering Technologies Division*
Certificate, Computer Programming: ORACLE, Wake Technical Community College
M.E., Engineering, North Carolina State University
Ph.D., Entomology, University of Missouri

James J. Chapman, *Department Head – Criminal Justice Technology Business Technologies Division*
B.A., History, North Carolina State University
J.D., Campbell University

Stephanie Chase, *Instructor – Emergency Medical Science, Health Sciences Division*
A.A.S., Emergency Medical Science, Wake Technical Community College

Chen-Pi Peter Chen, *Instructor – Computer Programming Computer & Engineering Technologies Division*
A.A.S., Computer Programming, Wake Technical Community College
M.A., Information Sciences, North Carolina Central University

Gail Smith Chesson, *Instructor-English Arts, Humanities, and Social Sciences Division*
B.A., English, North Carolina State University
M.A., English, North Carolina State University

Kelly P. Choplin, *Instructor/Coordinator – Information Systems Computer & Engineering Technologies Division*
B.A., English, North Carolina State University
M.S., Instructional Technology, East Carolina University

Elizabeth M. Church, *Instructor – Spanish Arts, Humanities, and Social Sciences Division*
B.A., M.A., Spanish, Western Michigan University

Trudy S. Clark, *Department Head – Dental Assisting Health Sciences Division*
B.S., Dental Auxiliary/Teacher Education, University of North Carolina
Certified Dental Assistant (D.A.N.B.)
Certified Oral and Maxillofacial Surgery Assistant (D.A.N.B.)

Jo Anne Clayton, *Instructor-Sociology Arts, Humanities, and Social Sciences Division*
B.A., Sociology, University of North Carolina, Wilmington
M.S., Sociology, Virginia Polytechnic Institute and State University
John Clevenger, *Instructor – Electronics Engineering Technology Engineering Technology Division*
A.A.S., Electronics, Craven Community College
B.S., Technical Education, North Carolina State University

Elizabeth C. Cochran, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., M.A., English, North Carolina State University

Dr. Barbara A. Coles, *Instructor – Bioscience Technology Health Sciences Division*
B.S., Biology, Clarion University
M.S., Ph.D., Physiology, North Carolina State University

Alison Jayne Consol, *Department Head, Internet Technologies Computer & Engineering Technologies Division*
A.A.S., Information Systems, Wake Technical Community College
B.S., Business Education, East Carolina University
M.S., Vocational Education, East Carolina University

David Cooper, *Instructor – Pre-Curriculum Academic Services Division*
B.S., Education, University of Wisconsin
M.A.E., Adult Developmental Studies, National-Louis University

Jacqueline Marie Copeland, *Instructor-Mathematics Mathematics and Sciences Division*
A.A.S., Liberal Arts, Kirkwood Community College
B.A., Mathematics, University of Iowa
M.S., Mathematics, Marquette University

Benjamin Lee Corbett, *Department Head – Humanities Arts, Humanities, and Social Sciences Division*
B.A., Business Administration, University of North Carolina
M.A., Political Science, North Carolina State University

James Howard Corbett, *Instructor – Information Systems Computer & Engineering Technologies Division*
A.A., Arts, Miami Dade Community College
B.M.E., Music Education, University of Montevallo
M.C.M., Church Music, Southern Baptist Theological Seminary

Samantha Perry Cox, CPA, *Instructor – Accounting Business Technologies Division*
B.B.A., Business Administration, Campbell University
M.B.A., Business Administration, Campbell University

Janet Carter Creech, *Instructor-Physical Education/Health Mathematics and Sciences Division*
B.S., Physical Education, Appalachian State University

Michael J. Cromartie, *Recruiter*
Computer & Engineering Technologies Division
A.A.S., Computer Programming, Wake Technical Community College
B.S., Engineering, Duke University

Michael Alan Crumpton, *Director of Library Services*
Curriculum Education Services
A.A., University of Central Florida
B.S., Business, University of Central Florida
M.A., Library Science, University of Kentucky

Winifred Sue Crumrine, *Department Head – Therapeutic Massage*
Health Sciences Division
B.A., Dance, Washington University in St. Louis
M.S., Physical Education, University of Wisconsin
Certificate, Medical Arts Massage, Raleigh, NC

Hong Cui, *Instructor – Information Systems*
Computer & Engineering Technologies Division
M.S., Computer Engineering, North Carolina State University

Michael A. Cylar, *Instructor – Information Systems,*
Computer & Engineering Technologies Division
A.A.S., Business Computer Programming, Wake Technical Community College
B.S., Commerce, North Carolina Central University

Dr. Elizabeth R. Davis, *Instructor-Psychology*
Arts, Humanities, and Social Sciences Division
B.S., Psychology, Virginia Polytechnic Institute and State University
M.S., Psychology-Counseling, Virginia Commonwealth University
Ph.D., Psychology-Counseling, Virginia Commonwealth University

Kelly M. Davis, R.N., *Instructor – Nursing*
Health Sciences Division
B.S.N., Nursing, East Carolina University
M.S., Nursing, University of North Carolina

Sheryl F. Davy, *Instructor – English as a Foreign Language*
Academic Support Division
B.S., Microbiology, Pennsylvania State University
M.A., TESL, Pennsylvania State University

Karen Dawes, *Instructor – Sociology*
Arts, Humanities, and Social Sciences Division
B.A., M.A., Sociology, East Carolina University

Marlys A. deAlba, *Instructor – Landscape Architecture*
Technology and Architectural Technology
Engineering Technology Division
B.A., Biology, Alfred University/New York
M.L.A., Landscape Architecture, North Carolina State University

Carolyn DeSimone, *Instructor – Networking Technology*
Computer & Engineering Technologies Division
A.A.S., Networking Technology, Wake Technical Community College

David Dial, *Instructor, Business Administration,*
Business Technologies Division
B.B.A., Business Administration, University of Texas
M.P.A., Public Administration, University of Texas
M.E., Management, North Carolina State University

Amber Sizemore Dill, *Instructor-Dental Hygiene*
Health Sciences Division
B.S., Dental Hygiene, University of North Carolina

Alissa B. Dix, *Instructor – Bioscience Technology*
Health Sciences Division
B.S., Dietetics, Michigan State University
M.S., Food Science, North Carolina State University

Dr. Ajit S. Dixit, *Instructor-Chemistry*
Mathematics and Sciences Division
M.S., Chemistry, University of Maine
PH.D, Chemistry, The University of Mississippi

William Donaldson, *Instructor – Electronics Engineering*
Technology
Engineering Technology Division
B.S., M.S., Electrical Engineering, North Carolina State University

Barbara L. Donegan, R.N., *Instructor – Nursing Assistant*
Health Sciences Division
A.A.S., Nursing, Kingsborough Community College

Susan Doody, *Instructor, English*
Arts, Humanities, and Social Sciences Division
B.A., English, University of San Francisco
M.A., English, Simmons College
M.Ed., Adult Education, Worcester State College

Suvanida Duangudom, *Outreach Services Librarian*
Library Services Division
B.S., Psychology, University of North Carolina
M.A., Library Science, University of Maryland

Rodney Allen Duke, *Instructor – Mechanical Drafting Technology*
Vocational Technology Division
A.A.S., Mechanical Drafting Technology, Wake Technical Community College

Timothy Ellsworth Dunn, *Instructor-Pre-Curriculum*
Mathematics
Academic Support Division
B.A., Communication, North Carolina State University
B.S., Mathematics, North Carolina State University
M.S., Communication, North Carolina State University

Richard B. Dupree, *Instructor – Accounting*
Business Technologies Division
B.S., Biochemistry, East Carolina University
M.B.A., Business Administration, East Carolina University

Lora Marie Eddington, *Department Head – Mechanical*
Engineering Technology, Manufacturing Engineering Technology,
and Industrial Engineering Technology
Engineering Technology Division
B.S., M.S., Mechanical Engineering, North Carolina State University
M.B.A., Business, Meredith College

Paige Edgerton, *Instructor – Pre-Curriculum*
B.S., Mathematics Education, North Carolina State University
M.Ed., Mathematics Education, University of North Carolina

Gloria W. Edwards, *Instructor/Coordinator – Basic Skills, Individualized Learning Center*
B.S., Elementary Education, University of North Carolina, Pembroke

Gerard W. Egan, *Instructor – Automotive Systems Technology Vocational Technology Division*
A.A.S., Automotive Systems, Wake Technical Community College
ASE Certified Master Automobile Technician

Lois Mary Eichelberger, *Instructor-Pre-Curriculum English Academic Support Division*
B.S., Education (Language Arts 7-12), Concord College
M.A., Reading Education, Marshall University

Julie I. Eldridge, *Instructor – Architectural Technology and Landscape Architecture Technology Engineering Technology Division*
A.A.S., Architectural Technology, Wake Technical Community College
B.S., Resources Management, SUNY College of Environmental Science and Forestry

Jeremy Enfinger, *Instructor – Radiography Health Sciences Division*
A.S., Radiologic Technology, Cypress College

James (Jay) Kenneth Estes, *Community Liaison/Instructor – Manufacturing Technology/Plastics Engineering Technology Division*
A.S., Business, Lees-McRae College
B.S., Marketing, Appalachian State University
M.A., Industrial Design, North Carolina State University

Bruce Roy Evans, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., Creative Art – Theatre, University of North Carolina
M.A., Speech Communication, University of North Carolina
M.F.A., Drama, University of Virginia

Nell M. Evans, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., M.A., English, North Carolina State University

Harry Ray Fair, *Instructor-Biology Mathematics and Sciences Division*
B.S., Biology, Wheeling College
A.M., Molecular Biology, Washington University in St. Louis

Deborah L. Farmer, R.N., C.S., *Instructor – Nursing Health Sciences Division*
B.S., Nursing, Medical College of Georgia
M.S., Nursing, University of Kentucky
ANA Certified Clinical Specialist in Adult Psychiatric-Mental Health Nursing

Charles Gregory Felkins, *Instructor/Coordinator, Individualized Learning Center*
B.A., Interdisciplinary, University of Alabama
M.A., English as a Second Language, University of Alabama

Julie Fenton-Glass, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., English, Wright State University
M.A., English, North Carolina State University

Jacqueline Fields, *Instructor – Pre-Curriculum Mathematics Academic Support Division*
B.S., Mathematics, East Carolina University

Rhoderick Eugene Fleming, *Instructor – Pre-Curriculum Mathematics Academic Support Division*
B.S., Mathematics, Saint Augustine's College

Delores Elaine Floyd, R.T. I(M)(CT)(QM)(BD), *Instructor – Radiography Health Sciences Division*
A.A.S., Radiologic Technology, Johnston Technical Institute
Certified Medical Radiographer (A.R.R.T.)

Tonya P. Forbes, *Interim Department Head – Natural Sciences Mathematics and Sciences Division*
B.S., Chemistry, University of Notre Dame

Brandon Lee Foster, *Instructor – Biology Mathematics and Sciences Division*
B.S., Zoology, Brigham Young University
M.S., Fisheries and Aquacultures, Auburn University

Cynthia R. Foster, *Instructor-Computer Programming Computer & Engineering Technologies Division*
B.S., Computer Science, Iowa State University

Rebecca P. Francis, *Instructor/Coordinator, Individualized Learning Center*
B.S., Pest Management, University of Kentucky
M.S., Plant Pathology, North Carolina State University

Dr. Lori A. Frear, *Instructor – Biology Mathematics and Sciences Division*
A.S., Science, Sullivan County Community College
B.S., Zoology, SUNY – Oswego
M.S., Science/Zoology, North Carolina State University
Ph.D., Zoology, North Carolina State University

Dean Russel Furbish, *Instructor – Bioscience Technology Health Sciences Division*
B.S., Psychology, North Carolina State University
B.A., Chemistry, North Carolina State University
B.A., Foreign Language, Thomas A. Edison State College
M.S., Zoology, University of Kentucky

Deborah Furbish, *Department Head – Bioscience Technology Health Sciences Division*
B.S., Zoology, North Carolina State University
B.S., Education, North Carolina State University
M.S., Education, University of Kentucky

W. D. Gamber, R.L.S., *Department Head – Civil Engineering Technology and Surveying Technology Engineering Technology Division*
A.A.S., Civil Engineering Technology, Wake Technical Community College
B.E.T., Engineering Technology, University of North Carolina

Christopher N. Gandy, *Instructor – Philosophy Arts, Humanities, and Social Sciences Division*
B.A., Philosophy, University of North Florida
M.A., Philosophy, San Jose State University

Patricia Kenney George, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., English, Albertus Magnus College
M.S., English Literature, Southern Connecticut State University

Patricia Ann Godin, *Department Head – Mechanical Drafting Technology Vocational Technology Division*
A.A.S., Mechanical Engineering Technology, Wake Technical Community College
A.A.S., Industrial Engineering Technology, Wake Technical Community College
B.A., English/Writing, Nazareth College

Juanita Green, *Instructor – Information Systems Computer & Engineering Technologies Division*
A.A., Pre-Secondary Education, Northwest Alabama State Junior College
B.S., Business Education, University of Alabama

Tonya J. Greene, *Instructor-Pre-Curriculum Reading Academic Support Division*
B.S., Elementary Education, University of North Carolina
M.Ed., Reading Education, University of North Carolina

Krisan C. Gregson, *Library Associate Library Services Division*
B.A., English, University of North Carolina
M.A.T., Teaching Education, University of North Carolina

Deborah Lynn Hadley, *Instructor – Business Administration/Human Resources Management Business Technologies Division*
B.S., Business Administration, California State University
M.A., Labor and Industrial Relations, University of Rhode Island

James Jeffrey Hadley, *Instructor-Culinary Technology Business Technologies Division*
Certificate, Culinary Arts, Northwood Institute
A.A.S., Hotel-Restaurant Management, Northwood Institute

Jospeh Haigler, *Instructor – History, Arts, Humanities, and Social Sciences Division*
A.F.A., Music and Music Education, Chowan College
B.S., Speech/Communication, Virginia Commonwealth University
M.Div, Divinity Languages, Southeastern Baptist Seminary

Jodi Kristen Hall, *Department Head – Human Services Technology Health Sciences Division*
B.S.W., Social Work, North Carolina State University
M.S.W., Social Work, University of North Carolina

James Hallett, *Instructor – Hotel and Restaurant Management and Culinary Technology Business Technologies Division*
A.A.S., Culinary Arts, Johnson and Wales University

Mary I. Harbison, *Instructor – Information Systems Computer & Engineering Technologies Division Trainer – Distance Education Academic Support Division*
A.A.S., Microcomputer Systems Technology, Wake Technical Community College
B.A., Chemistry, Meredith College

Eunice F. Hargett, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., English/Business, University of North Carolina
M.A., English, University of North Carolina

Steven R. Harless, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., M.A., English, University of South Florida

Olga K. Harris, *Instructor – English as a Foreign Language Academic Support Division*
B.A., Spanish, Duke University
M.A., Spanish, University of Texas, Austin
M.A., International Management, University of Texas, Dallas

Paige Allen Harris, *Instructor – History Arts, Humanities, and Social Sciences Division*
B.A., M.A., History, East Carolina University

Sylvia W. Harrison, *Department Head – High Performance Computing Computer & Engineering Technologies Division*
A.A.S., Networking Technology, Wake Technical Community College
B.A., Multi-Disciplinary Studies, North Carolina State University

Joyce Marie Hawkins, *Instructor – Information Systems Computer & Engineering Technologies Division*
A.A.S., Cosmetology, Ferris State University
B.S., Trade Technical Education, Ferris State University
M.A., General Education Administration, Central Michigan University

Woodrow Wilson Hayes, Jr., *Instructor-Advertising and Graphic Design Computer & Engineering Technologies Division*
A.A.S., Police Science Technology, Wake Technical Community College
B.S., Police Science Technology, North Carolina Wesleyan College

Deborah Hazel, R.N., *Instructor – Nursing Health Sciences Division*
B.S., Nursing, SUNY – Buffalo

Dave W. Hedrick, *Instructor – Mechanical Engineering Technology, Manufacturing Engineering Technology, and Industrial Engineering Technology Engineering Technology Division*
A.A.S., Industrial Engineering Technology, Wake Technical Community College

James E. Hester, P.E., *Instructor – Civil Engineering Technology and Surveying Technology*
Engineering Technology Division
A.A.S., Civil Engineering, Wake Technical Community College
B.A., Geography, East Carolina University

Iris B. Hill, *Instructor – Pre-Curriculum English*
Academic Support Division
B.S., English/French, Appalachian State University
M.A., Reading/English, Appalachian State University

Linda Edith Hill, *Instructor-Humanities*
Arts, Humanities, and Social Sciences Division
A.B., Home Economics, Ashland College
M.A., Humanities, John Carroll University

Steven J. Hill, *Instructor – History*
Arts, Humanities, and Social Sciences Division
B.A., Political Science, East Carolina University
M.A., History, East Carolina University

Clifton E. Hinton, *Department Head – Industrial Pharmaceutical Technology and Environmental Science Technology*
Engineering Technology Division
B.S., Biology, North Carolina Wesleyan College

Anita G. Hitchner, *Instructor-Sociology*
Arts, Humanities, and Social Sciences Division
B.A., Sociology, North Carolina State University
M.A., Rural Sociology, North Carolina State University

Steven Hitchner, *Instructor – Automotive Systems Technology,*
Vocational Education Division
B.A., English, Gettysburg College
M.A. English, North Carolina State University

Paul F. Hoch, Jr., *Instructor-History.*
Arts, Humanities, and Social Sciences Division
B.A., History, The University of the South
M.A., History, University of North Carolina

Lisa M. Hodge, *Instructor – Mathematics*
Mathematics and Sciences Division
B.A., Mathematics Education, University of North Carolina
M.A., Mathematics Education, Pembroke State University

Amanda Julia Hollis, *Instructor-English*
Arts, Humanities, and Social Sciences Division
B.S., English, North Carolina State University
M.A., English, North Carolina State University

Mandy Beatrice Holt, *Instructor-English*
Arts, Humanities, and Social Sciences Division
A.B., Journalism and Mass Communication, University of North Carolina
M.A., English, Appalachian State University

Gregory L. Honeycutt, *Instructor – Music*
Arts, Humanities, and Social Sciences Division
B.M.U., M.M., Music, University of North Carolina

Robert David Hoover, *Instructor-English as a Foreign Language*
Academic Support Division
B.A., English/French Education, Marshall College

Ellen O. Horne, *Instructor – Medical Assisting*
Health Sciences Division
A.A., Medical Assisting Technology, Pitt Community College

Pamela B. Horton, *Department Head – Medical Laboratory Technology and Phlebotomy*
Health Sciences Division
B.S., Medical Technology, East Carolina University
M.Ed., Health Occupation Education, North Carolina State University
Certified M.T. (A.S.C.P.)
CLS (NCA)

Tracey Lynn Horton, *Instructor-Psychology*
Arts, Humanities, and Social Sciences Division
B.S., Psychology, Appalachian State University
M.A., Psychology, Western Carolina University
Ph.d., Philosophy, Walden University

Caralyn House, *Instructor – Hotel and Restaurant Management and Culinary Technology*
Business Technologies Division
B.S., Business Administration, Appalachian State University
Graduate, L'Academic de Cuisine

Kenneth Howard, *Instructor – Geology*
Mathematics & Sciences Division
B.S., Earth Sciences, Massachusetts Institute of Technology
Ph.D., Geology, University of California

F. Michael Hughes, *Real Estate Coordinator*
Business Technologies Division
B.A., Business Administration, Barton College

Jeffrey D. Humphrey, *Instructor-Pre-Curriculum Mathematics*
Academic Support Division
B.S., Mathematics Education, North Carolina State University
B.A., History, North Carolina State University
M.Div., Pastoral Ministry, Westminster Theological Seminary

Larry Joe Hunter, *Instructor-Automotive Systems Technology*
Vocational Education Division
A.A.S., Automotive, Thomas Nelson Community College

Amber Smith Hurst, *Instructor-Electronics Engineering Technology*
Engineering Technology Division
B.A., Electrical Engineering, Auburn University
M.S., Computer Engineering, North Carolina State University

Samuel W. Isley, *Instructor-Business Administration*
Business Technologies Division
B.S., Business Administration, University of North Carolina
M.A., Business Administration, Pfeiffer University,

Christopher James, *Instructor – Internet Technologies*
Computer & Engineering Technologies Division
Certificate, Computer Engineering, Wake Technical Community College
B.S., Geology/Chemistry, Campbell University
M.S., Geology, West Virginia University

Michael L. Jensen, *Site Director/Instructor – Manufacturing Technology/Plastics*
Engineering Technology Division
B.S., Mechanical Engineering, Arizona State University

G. Jerome Johnson, Jr., *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., Music/Theatre, St. Andrews Presbyterian College
M.F.A., Acting/Directing, University of North Carolina

Jana M. Johnson, R.T.-R., *Instructor – Radiography Health Sciences Division*
A.A.S., Radiography, Wake Technical Community College
B.A., Psychology, Meredith College
Certified Medical Radiographer (A.R.R.T.)

Paul Johnson, *Instructor – Networking Technologies, Computer & Engineering Technologies Division*
B.S., Electronics Technology, University of South Carolina

Sharon G. Johnson, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., M.A., English, North Carolina State University

Karen F. Jones, *Department Head, Bioscience Technology Health Sciences Division*
B.S., Biology, East Carolina University
M.S., Physiology, North Carolina State University

Shelbra Bullock Jones, *Instructor – Pre-Curriculum Mathematics Academic Support Division*
A.A., Liberal Arts, Peace College
B.A., Mathematics, East Carolina University

Anne Jones-Sutton, *Instructor – Dental Hygiene Health Sciences Division*
B.S., Nursing, University of North Carolina
M.S., Nursing, Virginia Commonwealth University

Catherine Ann Jordan, *Instructor – Mathematics Mathematics and Sciences Division*
B.S., Math/Secondary Education, University of Arkansas
M.S., Statistics, University of Arkansas

Michael A. Joyner, *Instructor – English Arts, Humanities, and Social Sciences Division*
B.A., Philosophy/English, East Carolina University
M.A., English, East Carolina University

Laura Marie Kalbaugh, *Instructor-Pre-Curriculum Mathematics Academic Support Division*
B.S., Mathematics, Indiana University of Pennsylvania

Jean-Pierre Kamuabo, *Instructor – Religion Arts, Humanities & Social Sciences Division*
D.M., Theology, Columbia International University
M.Div., Divinity, Shaw University
M.A., Agency Counseling,

John R. Kane, *Instructor – English as a Foreign Language Academic Support Division*
B.A., History, Mercyhurst College
M.A., History, Edinboro University of Pennsylvania

Shelley Stall Kane, *Instructor-Accounting Business Technologies Division*
B.A., Economics, Wake Forest University
M.B.A., Business Administration, Texas A & I University

Jon Paige Kearns, *Instructor – Heavy Equipment and Transport Technology Vocational Technology Division*
Diploma, Heavy Equipment Mechanics, Wake Technical Community College

Ann Marie Kennedy, *Instructor – Art Arts, Humanities & Social Sciences Division*
A.B., Visual Arts – Studio, College of the Holy Cross
M.F.A., Art, University of Iowa
M.A., Art, University of Iowa

Barbara S. Kennedy, *Instructor-Pre-Curriculum Mathematics Academic Support Division*
B.S., Mathematics, University of New Hampshire

Dr. Susan Kent, *Instructor – Biology Mathematics and Sciences Division*
A.A.S., Pre-Med, Anne Arundel Community College
B.S., Botany, University of Maryland
M.S., Ph.D., Plant Pathology, North Carolina State University

Dianne L. Keyser, *Instructor – Dental Assisting Health Sciences Division*
B.A., Psychology, Sweet Briar College
Certified Dental Assistant
Certified Orthodontic Assistant

Nelson J. Kick, Jr., CmfgE, *Instructor – Automation Engineering Technology and Electronics Engineering Technology/Instrumentation Engineering Technology Division*
B.S., Electrical Engineering, University of Colorado

Kathryn Kiec, *Instructor – Spanish Arts, Humanities & Social Sciences*
B.A., Spanish, Barnard College
M.A., Teaching, University of North Carolina

Robert L. Kimball, Jr., *Department Head – Mathematics and Physics Mathematics and Sciences Division*
B.S., Mathematics Education, North Carolina State University
M.S., Education, North Carolina State University

Cynthia K. King, *Instructor/Coordinator – Individualized Learning Center*
B.S., Sociology, Atlantic Christian College
M.A.Ed., Learning Disabilities, East Carolina University

Lauree King, R.N., *Instructor – Nursing Health Sciences Division*
B.S., M.S., Nursing, Georgia State University

Renee Sasser King, R.N., *Instructor – Nursing Assistant Health Sciences Division*
A.A.S., Nursing, Wake Technical Community College
B.S., Nursing, North Carolina Central University

Christy Love Kinnion, *Instructor-English*
Arts, Humanities, and Social Sciences Division
B.A., English, East Carolina University
M.A., English, East Carolina University

Elizabeth Ann Knocklein, *Site Coordinator – State Personnel*
Development Center
Computer & Engineering Technologies Division
A.A.S., Information Systems, Wake Technical Community College
Certificate, Microcomputer Systems Technology: Database
Management, Wake Technical Community College
Certificate, Information Systems: Desktop Publishing, Wake
Technical Community College

Dr. Ravi Kohli, *Instructor – Networking Technology*
Computer & Engineering Technologies Division
M.S., Engineering, University of California
M.B.A., Business Administration, Western Michigan University
Ph.D., Business, Organization, and Management, Capella
University

Lorraine Krichko, *Library Associate, Circulation Services*
Library Services Division
A.A.S., Library Media Technology Assistant, Wake Technical
Community College
B.A.S., Applied Science, Campbell University

Shannon M. Kubiak, *Instructor/Coordinator, Math Center,*
Individualized Learning Center
B.S., Mathematics, University of Florida
M.S., Applied and Industrial Math, Towson University

John P. Kumhyr, *Instructor – Emergency Medical Science*
Health Sciences Division
B.S., Zoology, North Carolina State University

Arthur Howard LaFord, *Instructor/Industry Liaison –*
Manufacturing Technology/Plastics
Engineering Technology Division
B.S., Industrial Engineering, New Jersey Institute of Technology

Linda M. Larson, *Instructor-Advertising and Graphic Design*
Computer & Engineering Technologies Division
B.A., Studio Art, Meredith College

Mary C. Larson, *Instructor-Information Systems*
Computer & Engineering Technologies Division
A.A.S., Help Desk, Wake Technical Community College

Robert S. Larson, *Instructor – English*
Arts, Humanities, and Social Sciences Division
B.A., English, North Carolina State University
M.A., English, University of North Carolina

Byron Latil, *Instructor – Civil Engineering Technology*
Computer & Engineering Technologies Division
A.A.S., Surveying Technology, Wake Technical Community
College
A.A.S., Civil Engineering Technology, Wake Technical
Community College

Dina M. Law, *Instructor-Communication*
Arts, Humanities, and Social Sciences Division
B.A., English, Florida State University
M.A., Communication Media, Barry University

Jennifer R. Leamy, *Instructor – Pre-Curriculum English*
Academic Support Division
B.A., English, St. Lawrence University
M.A., English, North Carolina State University

Robin H. Lee, *Instructor – Radiography*
Health Sciences Division
A.A.S., Radiologic Technology, Wake Technical Community
College

Madeleine Leeds, *Instructor – Early Childhood Associate*
Business Technologies Division
B.A., Music, Boston University
M.Ed., Special Education, Pre-Kindergarten, University of North
Carolina

Adrienne A. Leinbach, *Instructor – Geology*
Mathematics and Sciences Division
B.S., M.S., Geology, East Carolina University

Dr. Man C. Leung, *Instructor – Computer Programming*
Computer & Engineering Technologies Division
M.S., Computer Science, University of North Carolina
Ph.D., Developmental Psychology, University of North Carolina

Gwynneth-Elise Lindsey, *Instructor – Mathematics*
Mathematics & Sciences Division
B.S., Mathematics, Mississippi College
M.A., Mathematics, Mississippi College

William Bart Lineback, *Department Head – Emergency Medical*
Science
Health Sciences Division
A.A.S., Emergency Medical Science, Wake Technical Community
College
B.S., Electrical Engineering, North Carolina State University
Certified EMT-Paramedic, Advanced Cardiac Life Support,
Pediatric Advanced Life Support, and Basic Trauma Life Support

Donald Little, *Instructor – Human Services Technology*
Health Sciences Division
B.S., Political Science, Appalachian State University
M.A., History, George Washington University
M.A., Human Development and Learning, University of North
Carolina

Carol R. Lodder, *Instructor – Spanish*
Arts, Humanities, and Social Sciences Division
B.A., Spanish, SUNY – Brockport
M.A., Spanish Literature, SUNY – Buffalo

Dr. Diane E. Lodder, *Department Head – Psychology*
Arts, Humanities, and Social Sciences Division
B.A., Psychology, West Virginia University
M.S., Ph.D., Psychology, Virginia Commonwealth University

Denise M. Lorenz, *Instructor-Information Systems
Computer & Engineering Technologies Division*
A.A.S., Data Processing, Corning Community College
B.S., Computer Science, University of Maryland
M.S., Computer Science, Florida Institute of Technology

Gerald Todd Lovett, *Instructor-English
Arts, Humanities, and Social Sciences Division*
B.A., English, East Carolina University
M.A., English, East Carolina University

Ronald A. Lowe, *Department Head – Heavy Equipment and
Transport Technology
Vocational Technology Division*
Diploma, Auto Diesel Technician, Nashville Auto Diesel College
A.G.E., General Education, Wake Technical Community College
A.A.S., Heavy Equipment and Transport Technology, Wake
Technical Community College

Brenda P. Maddox, R.D.H., *Department Head – Dental Hygiene
Health Sciences Division*
A.A.S., Dental Hygiene, Monroe Community College
B.S., M.S., Dental Hygiene, Old Dominion University

Albert B. Maginnes, *Instructor – English
Arts, Humanities, and Social Sciences Division*
B.A., English, East Carolina University
M.F.A., Creative Writing, University of Arkansas

Deborah S. Maness, *Instructor – Pre-Curriculum Reading
Academic Support Division*
B.S., Early Childhood Education, University of North Carolina
M.Ed., Education/Guidance and Personnel Service, North Carolina
State University

James W. Marco, *Instructor – Business Administration/Human
Resources Management
Business Technologies Division*
A.B., Economics, Belmont Abbey College
M.B.A., Business Administration, University of Dayton

Peter Thomas Marino, *Instructor – Telecommunications and
Network Engineering Technology
Engineering Technology Division*
B.S., Electronics Engineering, California State Polytechnic
University
M.S., Electronics Engineering, Colorado State University

Dr. Kelly Hunter Markson, *Instructor-Economics
Business Technologies Division*
B.A., History, Hamilton College
M.A., Economics, Syracuse University
Ph.D., Economics, North Carolina State University

Dr. Joseph William Marohl, *Instructor – English
Arts, Humanities, and Social Sciences Division*
B.S., Secondary Education, Tennessee Temple University
M.A., English, Marshall University
Ph.D., English, University of Miami

Ellen M. Martin, R.N., *Instructor – Nursing
Health Sciences Division*
B.S., Nursing, University of North Carolina

James Martin, *Instructor – Mathematics
Mathematics and Sciences Division*
B.S., M.Ed., Mathematics Education, North Carolina State
University

Nancy Martin-Young, *Instructor – English
Arts, Humanities, and Social Sciences Division*
B.A., English/Art, Villanova University
M.A., English, Villanova University

Teddy R. Maynard, *Instructor – Mathematics and Physics
Mathematics and Sciences Division*
B.S., Mathematics, Western Carolina University
M.S., Operations Research, Naval Postgraduate School
M.S., Applied Mathematics, Johns Hopkins University

Thomas C. Maynard, *Instructor – Emergency Medical Science
Health Sciences Division*
A.A.S., Emergency Medical Science, Wake Technical Community
College

Anna C. McAdams, *Recruiter
Computer & Engineering Technologies Division*
B.A., Industrial Relations, University of North Carolina
M.A., Education, East Carolina University

Walter C. McCarter, *Instructor – Mathematics and Physics
Mathematics and Sciences Division*
B.A., Physics, Dartmouth College
M.A., Physics, Johns Hopkins University
M.S., Mathematics, North Carolina State University

Mary S. McCauley, *Instructor – English
Arts, Humanities, and Social Sciences Division*
B.A., English, University of Washington
M.A., English, University of Illinois

DeLayne R. McGehee, *Instructor – Medical Laboratory
Technology
Health Sciences Division*
B.S., Biology, New Mexico State University
B.A., Psychology, New Mexico State University
B.S., Clinical Laboratory Science, University of Texas at El Paso
Certified M.T. (A.S.C.P.)
CLS (NLA)

Kerry McLoughlin, *Instructor – Sociology
Arts, Humanities & Social Sciences Division*
B.S. Sociology, Barry University
M.A., Sociology, University of South Carolina

Sharon Willis McMillian, *Department Head – Individualized
Learning Center*
B.S., Sociology, Tuskegee University
M.S., Adult Education, North Carolina A&T State University

Susan Meardon, *Department Head – Telecommunications and
Network Engineering Technology
Engineering Technology Division*
B.S., M.S., Electrical Engineering, University of Central Florida

James W. Melton, Sr., *Department Head – Industrial Systems Technology*
Vocational Technology Division
A.S., Science, Davidson County Community College
Certified Manufacturing Engineer/SME
Certified, Automation/Robotics

Karen F. Merris, *Instructor – English*
Arts, Humanities, and Social Sciences Division
B.S., Education, Bowling Green State University
M.A., English, University of Kentucky

Jill Cardwell Mikulecky, *Instructor – Environmental Science Technology*
Engineering Technology Division
B.S., Chemistry/Biology, Austin Peay State University
M.S., Chemistry, North Carolina State University

C. Brent Miller, *Instructor-Philosophy and Religion*
Arts, Humanities, and Social Sciences Division
B.A., Religion, Samford University
M.Div., Divinity, Princeton Theological Seminary
M.A., Philosophy, Fordham University

Gretchen L. Miller, *Instructor-Geology*
Mathematics and Sciences Division
B.A., Geological Sciences, University of Buffalo
A.M., Earth and Planetary Sciences, Washington University

Robert Joseph Miller, *Instructor-Information Systems*
Computer & Engineering Technologies Division
B.S., Business Administration, North Carolina Wesleyan College

Ronda Sue Miller, *Instructor-Nursing*
Health Sciences Division
B.S., Nursing, University of North Carolina, Wilmington

Ksenija Mitrovich, *Instructor-English as a Foreign Language*
Academic Support Division
M.A., American Studies, University of Alabama

Adolphe Molin, *Instructor-Computer Programming*
Computer & Engineering Technologies Division
B.S., Electrical Engineering, State University of New York
M.S., Electrical Engineering, Polytechnic University
M.S., Computer Science, Stevens Institute of Technology

Jana Marie Montgomery, *Instructor-Radiography*
Health Sciences Division
A.A.S., Radiography, Wake Technical Community College
B.A., Psychology, Meredith College

Katherine Moore, *Instructor - Technology*
Health Sciences Division
B.S., Biochemistry, North Carolina State University
Certified M.T. (A.S.C.P.)

Nancey Fay Moore, *Instructor-History*
Arts, Humanities, and Social Sciences Division
B.A., History/Political Science, Morris Harvey College
M.A., History, North Carolina State University

Richard D. Moore, *Instructor – Electrical/Electronics Technology*
Vocational Technology Division
A.G.E., General Education, Wake Technical Community College
N.C. Electrical Contractors License

Fredi Morf, *Instructor – Hotel and Restaurant Management and Culinary Technology*
Business Technologies Division
Certified Culinary Educator, American Culinary Federation
Certified Hospitality Educator, American Hotel and Lodging Educational Institute

Sidney L. Morris, *Instructor-Radiography*
Health Sciences Division
A.A.S., Radiologic Technology, Edgecombe Community College

Jeannette M. Moss, *Director of Placement*
Academic Services Division
B.A., Elementary Education, Elon College
M.Ed., Education, North Carolina State University

Damu C. Murray, *Instructor-Advertising and Graphic Design*
Computer & Engineering Technologies Division
B.F.A., Art, New Mexico State University

Rebecca Neagle, *Instructor – English*
Arts, Humanities and Social Sciences Division
B.A. English, Marshall University
M.A., English Education, University of North Carolina

Cynthia Booth Neighbors, *Instructor – English*
Arts, Humanities, and Social Sciences Division
B.A., English, University of Central Oklahoma
M.A., English/Composition, University of Central Oklahoma

James Neilson, *Instructor – English*
Arts, Humanities & Social Sciences Division
B.A., English, University of Cincinnati
M.A., English, Miami University
M.S., Library Science, University of North Carolina
Ph.D., English, University of North Carolina

Esther O. Ogirri, *Reference Librarian*
Library Services Division
B.A., Foreign Language – French, West Virginia University
M.A., TESOL, West Virginia University
M.L.I.S., Library and Information Science, University of South Carolina

Kim Lewis Olds, *Instructor-Office Systems Technology*
Business Technologies Division
B.A., Liberal Arts and Sciences, Virginia Polytechnic Institute and State University
M.Ed., Education, Virginia State University

Rudolph E. Oliver II, P.E., *Instructor – Mechanical Engineering*
Technology, Manufacturing Engineering Technology, and Industrial Engineering Technology
Engineering Technology Division
B.S., Aerospace Engineering, North Carolina State University
M.S., Mechanical Engineering, North Carolina State University

Dale Adams O'Neal, R.N., *Instructor – Nursing*
Health Sciences Division
B.S.N., Nursing, East Carolina University
M.S., Adult Education, North Carolina State University

Deborah P. Ortiz, *Instructor – Civil Engineering Technology and Surveying Technology*
Engineering Technology Division
B.S., Civil Engineering, Syracuse University
M.S., Civil Engineering, University of Illinois

Diana G. Osborne, *Department Head – Distance Education*
Academic Support Division
A.A., General Studies, Suffolk Community College
B.A.S., Applied Science, Campbell University

Carolyn T. Owen, *Instructor-Psychology*
Arts, Humanities, and Social Sciences Division
A.B., History, East Carolina University
M.A., Psychology, Pepperdine University

Adelaide Pingkan Pangemanan, *Instructor-Mathematics*
Mathematics and Sciences Division
B.S., Mechanical Engineering, University of Southern California
B.A., Mathematics, University of Southern California
M.S., Applied Mathematics and Statistics, SUNY at Stony Brook

Charmaine A. Parker, L.P.N., *Department Head – Medical Assisting*
Health Sciences Division
Certified Allied Health Instructor, Registry of American Medical Technologists

Karl Parr, P.E., *Department Head – Automation Engineering Technology*
Engineering Technology Division
B.S., Electrical Engineering, North Carolina State University

Ginger Pasley, *Instructor – Environmental Science Technology*
Engineering Technology Division
B.S., Natural Resources, Purdue University
M.S., Environmental Science, Indiana University

Grady Patterson, III, *Instructor – Emergency Medical Services*
Health Sciences Division
A.A.S. Emergency Medical Science, Wake Technical Community College

Pat Patterson, *Instructor – Emergency Medical Science*
Health Sciences Division
A.A.S., Emergency Medical Science, Wake Technical Community College
B.A., Industrial Photography, Brooks Institute

Pamela L. Paul, *Instructor-Networking Technology*
Computer & Engineering Technologies Division
A.A.S., Networking Technology, Wake Technical Community College

Dr. Mary Dowlen Pearce, *Instructor-Mathematics*
Mathematics and Sciences Division
B.S., Mathematics and Chemistry, Austin Peay State University
M.S., Mathematics, Florida State University
Ph.D., Mathematics, Florida State University

Dr. Robert C. Pellow, *Instructor – Chemistry*
Mathematics and Sciences Division
B.A., Chemistry, Rutgers
M.A., Chemistry, Princeton University
Ph.D., Chemistry, University of Florida

Paula Perry, *Instructor – Medical Laboratory Technology*
Health Sciences Division
B.S., Marine Biology, University of North Carolina

Richard L. Perry, *Instructor – Sociology*
Arts, Humanities, and Social Sciences Division
B.A., Philosophy, Millsaps College
M.S., Educational Administration, University of Wisconsin
M.A., American Studies, California State University – Fullerton
M.A., Sociology, University of California – San Diego

Anthony C. Petty, *Instructor-Political Science*
Arts, Humanities, and Social Sciences Division
B.A., Political Science, Appalachian State University
M.A., Political Science, North Carolina State University

Jeanne R. Phelps, *Instructor – Medical Laboratory Technology*
Health Sciences Division
B.S., Medical Technology, University of North Carolina
M.Ed., Health Occupations, North Carolina State University
Certified M.T. (A.S.C.P.), S.M. (A.S.C.P.)
C.L.A. (N.C.A.)

Jacqueline Popp, *Instructor – Sociology*
Arts, Humanities & Social Sciences
B.S. Psychology, University of Georgia
A.B., Sociology, University of Georgia
M.A., Sociology, University of Georgia

Stephen Prescott, *Instructor – Business Administration*
Business Technologies Division
B.A. Religion and History, University of Florida
M.A., History, University of Florida
J.D., University of Florida

Peggy Quinn, *Health Sciences Librarian*
Library Services Division
B.A., Sociology, Atlantic Christian College
M.L.S., Library Science, North Carolina Central University

Judith Ann Rahm, R.N., *Department Head – Nursing*
Health Sciences Division
B.A., Nursing, The College of St. Catherine
M.S., Public Health Nursing, University of North Carolina

Gary R. Randall, *Department Head – Electrical/Electronics Technology*
Vocational Technology Division
Diploma, Electrical Maintenance, Wake Technical Community College
A.G.E., General Education, Wake Technical Community College
A.A.S., Electrical/Electronics Technology, Wake Technical Community College
N. C. Electrical Contractors License

Karen I. Ray, *Instructor – Early Childhood Associate Business Technologies Division*
B.A., History, University of North Carolina
M.Ed., Pre-Kindergarten, University of North Carolina

Betsy L. Renfrew, *Department Head – Fine Arts Arts, Humanities, and Social Sciences Division*
B.S., Fine Arts, Towson State University
M.A., Art Education, West Virginia University
M.A., Fine Arts, University of North Carolina

William T. Rhoades II, *Instructor – Biology Mathematics and Sciences Division*
B.S., General Biology, Purdue University
M.S., Zoology, University of Florida

Mark A. Riek, *Instructor – Math Center Individualized Learning Center*
B.S., Computer Information Science, Arizona State University

Dr. Donald Royal Riggs, *Instructor-Philosophy Arts, Humanities, and Social Sciences Division*
B.A., Philosophy, University of North Carolina
M.A., Philosophy, University of Illinois
Ph.D., Philosophy, University of Illinois

Thomas M. Riley, *Instructor – History Arts, Humanities & Social Sciences Division*
B.A., History, Samford University
M.Div., Duke University

Nancy J. Rivers, *Instructor – Mathematics Mathematics and Sciences Division*
B.A., M.S., Mathematics, University of Florida

Daniel Ferguson Roberts, *Instructor-English as a Foreign Language Academic Support Division*
B.A., French, University of North Carolina
M.A.T., English as a Second Language/French, School for International Training

Randy J. Robertson, *Instructor – Networking Technology Computer & Engineering Technologies Division*
A.A., Associate in Arts, Sandhills Community College
B.S., Information Systems, Appalachian State University

Christina B. Robinson, *Instructor – Dental igiene Health Sciences Division*
Associate in Arts Degree, Junior College Diploma, St. Mary's Junior College
B.S., Dental Hygiene, University of North Carolina
M.S., Dental Hygiene Education, University of North Carolina

Sondra Dimarcico Robinson, *Instructor-Information Systems Computer & Engineering Technologies Division*
A.A.S., Microcomputer Systems Technology, Wake Technical Community College

Carl Richard Roda, *Instructor-Air Conditioning, Heating, and Refrigeration Technology Vocational Education Division*
A.A.S., Electrical Technology, Onondaga Community College

Dr. Christopher Adam Roddenberry, *Instructor-Psychology Arts, Humanities, and Social Sciences Division*
B.A., Psychology, University of North Carolina
M.A., Psychology, University of North Carolina
Ph.D., Psychology, University of North Carolina

Linda R. Rogers, B.S., R.T. I(M)(CVI), *Instructor – Radiography Health Sciences Division*
Certificate, Radiologic Technology, Meriden Hospital
B.S., Health Education Occupations, North Carolina State University
Certified Medical Radiographer (A.R.R.T.)

Stephanie Leigh Rollins, *Instructor – Geology Mathematics and Sciences Division*
B.S., M.S., Geology, East Carolina University

Paula S. Rosen, *Instructor – Office Systems Technology Business Technologies Division*
B.S., Business Education, Appalachian State University
M.S., Business Education, University of North Carolina

Walter D. Rotenberry, *Instructor – Computer Programming Computer & Engineering Technologies Division*
A.A.S., Computer Engineering, Surry Community College
B.S., Technical Education, North Carolina State University

William Allan Routt, *Department Head – Electronics Engineering Technology Engineering Technology Division*
B.S., Electrical Engineering, Pennsylvania State University
M.S., Electrical Engineering, Carnegie Institute of Technology

Bennett A. Rowland, Jr., *Department Head, Welding Technology Vocational Education Division*
Diploma, Welding Technology, Wake Technical Community College
A.S., Wake Technical Community College
Certified ASME and AWS in Plate and Pipe

Mary Kathleen Rowland, *Instructor-Communications and Drama Arts, Humanities, and Social Sciences Division*
B.A., Speech Communication, North Carolina State University
M.F.A., Drama, University of North Carolina

Bobby G. Ruth, *Department Head – English Arts, Humanities, and Social Sciences Division*
B.A., M.A., English, North Carolina State University

Kay Bennett Ruth, *Instructor – Pre-Curriculum English Academic Support Division*
B.A., English, University of North Carolina
M.A., English, University of North Carolina

Marcia Ryskamp, *Instructor – English as a Foreign Language Academic Support Division*
B.A., Speech/Drama, The American University
M.A., Linguistics, The American University

Charles Michael Sadtler, *Department Head – Air Conditioning, Heating, and Refrigeration Technology Vocational Technology Division*
Diploma, Air Conditioning, Heating, and Refrigeration Servicing, Wake Technical Community College
A.G.E., General Education, Wake Technical Community College
N.C. H3-II Contractors License
Instructor Certification, ACCA in Load Calculation, Equipment Selection and Duct Design

Joan Sanoff, *Department Head – Early Childhood Associate Business Technologies Division*
B.A., M.S., Early Childhood Education, The City University of New York

Laura Saparilas, *Criminal Background and Testing Administrator, Health Sciences Division*
B.S., Social Sciences, Gardner-Webb University

Christopher Saunders, *Instructor – English Arts, Humanities & Social Sciences Division*
B.S. English, Radford University
M.A. English, Appalachian State University

Scott Schlesinger, *Instructor – Music Arts, Humanities, and Social Sciences Division*
B.M.E., Music Education, Indiana University
M.F.A., D.M.A., Music, University of California, Los Angeles
M.L.S., Library Science, North Carolina Central University

Michael Roger Schore, *Instructor – Internet Technologies Computer & Engineering Technologies Division*
A.A.S., Medical Laboratory Technology, Burlington County College
B.S., Electrical Engineering, University of Texas
M.S., Electrical Engineering, Air Force Institute of Technology

Alison Jean Schubert, *Instructor-Mathematics Mathematics and Sciences Division*
B.A., Anthropology/Mathematics, New York University

Dr. Katie Bates Scogin, *Instructor-Humanities Arts, Humanities, and Social Sciences Division*
B.A., Journalism, Howard College
M.Ed., Reading, East Texas State University
Ph.D., History, University of North Texas

Maurice C. Sexton, Jr., *Instructor – Mathematics Mathematics and Sciences Division*
B.S., M.S., Mathematics Education, North Carolina State University

Patricia H. Sexton, *Library Assistant Library Services Division*
Certificate, Public Service, Central Carolina Community College
Certificate, Cataloging, Central Carolina Community College
Diploma, Library Information Technology, Central Carolina Community College
B.A., Sociology, Catawba College

Geeta Dilip Shah, *Instructor – Business Administration Business Technologies Division*
B.A., M.A., Economics, Gujarat University
Ph.M., Mathematical Economics, Gujarat University

Dolores R. Shaver, *Instructor – Pre-Curriculum Mathematics Academic Support Division*
B.S., Mathematics, Pfeiffer University
M.A., Mathematics, Wake Forest University

Thomas Robert Shay, *Instructor/Coordinator, Individualized Learning Center*
B.A., Education, University of Kentucky

Lara Jean Sheppa, R.N., C.N.P., *Instructor – Nursing Health Sciences Division*
B.S.N., Nursing, Youngstown State University
M.S.N., Nursing, Kent State University

Kelly Ann Sheppard, *Instructor – Art Arts, Humanities, and Social Sciences Division*
B.F.A., Art Education, University of North Carolina
M.F.A., Art, East Carolina University

Linda Ilene Shieff, *Instructor – Pre-Curriculum English Academic Services Division*
B.A., English, The University of Lethbridge
M.A., Interdisciplinary Studies, The University of Texas–Dallas

Linda W. Shimm, R.N., *Instructor – Nursing Health Sciences Division*
B.S.N., Nursing, East Carolina University
M.S., Medical Surgical Nursing, Boston University

Martha Shurtleff, R.N., *Instructor – Surgical Technology Health Sciences Division*
B.S., Nursing, University of Maryland
M.S.N., Nursing, Marymount College

Mary W. Sikes, *Instructor – Pre-Curriculum Mathematics Mathematics and Sciences Division*
B.A., Mathematics, Coker College
M.S., Mathematics, North Carolina State University

Janie J. Slaughter, *Instructor – Business Education Business Technologies Division*
A.A.S., Criminal Justice, Wake Technical Community College
B.A., Justice/Public Policy, North Carolina Wesleyan College
M.A., Law Enforcement and Corrections, North Carolina Central University

Jennifer Lynne Smeal, *Instructor – Pre-Curriculum Mathematics Academic Support Division*
B.S., Math Education, Ohio University

Barbara M. Smith, *Instructor – Dental Hygiene Health Sciences Division*
B.S., Dental Hygiene, University of North Carolina
M.S., Health and Physical Education, Virginia Polytechnic Institute and State University

Belinda E. Smith, *Instructor – Pre-Curriculum English Academic Support Division*
A.B., English, Pfeiffer College
M.Ed., Reading, University of North Carolina

Susan Rae Smith, *Instructor – Dental Hygiene*
Health Sciences Division
A.S., Dental Hygiene, West Virginia Institute of Technology
B.S., Dental Hygiene, West Virginia University

Tonya Johnson Smith, R.T. I., *Instructor – Radiography*
Health Sciences Division
A.A.S., Radiologic Technology, Johnston Community College
Certified Medical Radiographer (A.R.R.T.)

Michael R. Soloway, *Instructor – Architectural Technology*
Engineering Technology Division
B.E.D., Environmental Design/Architecture, North Carolina State University

F. Kathy Spade, R.N., *Instructor – Nursing*
Health Sciences Division
B.S.N., Nursing, Emory University
M.S.N., Nursing, University of Virginia

Helen W. Spain, *Instructor – Office Systems Technology*
Business Technologies Division
B.S., M.A., Education, University of Houston

Billie J. Stamper, *Instructor-Information Systems*
Computer & Engineering Technologies Division
A.A.S., Plant Maintenance, Henry Ford Community College
Cisco Certified Academy Instructor (CCAI)
Cisco Certified Network Associate (CCNA)
Microsoft Office Specialist – Word XP Core
IC3 Certified Professional

Tina Starling, *Instructor – Mathematics*
Mathematics & Sciences Division
B.S., Mathematics, North Carolina State University
B.S., Mathematics Education, North Carolina State University
M.S., Mathematics Education, North Carolina State University

Deborah T. Stowell, *Instructor-Office Systems Technology*
Business Technologies Division
A.A., Pre-Business, Craven Community College
B.S., Business, East Carolina University

Sue Stroud, *Instructor – English as a Foreign Language*
Academic Support Division
B.A., Religion/Philosophy, Mars Hill College

Dr. Narasimhan Sujatha, *Instructor – Physics*
Mathematics and Sciences Division
B.S., M.S., Science Education, University of Mysore, India
Ph.D., Physics, Pennsylvania State University

John David Sulentic, *Instructor – History*
Arts, Humanities, and Social Sciences Division
B.A., History, St. Ambrose University
M.A., History, George Mason University

Steven D. Swann, *Department Head – English as a Foreign Language*
Academic Support Division
B.S., Business Administration, East Carolina University
M.A., Linguistics, University of North Carolina

William F. Swanson, *Instructor – Networking Technology*
Computer & Engineering Technologies Division
B.S., Marketing, Northern Illinois University

Patricia W. Talley, *Instructor – Religion*
Arts, Humanities, and Social Sciences Division
A.A., Liberal Arts, Chowan College
B.A., Philosophy/Religion College
M.Div., Biblical Studies, Southeastern Baptist Theological Seminary

Dana W. Tamer, *Instructor/Coordinator – Computer Center*
Individualized Learning Center
B.S., Management Information Systems, Gardner-Webb College
M.A., Economics and Business Teaching, Appalachian State University

Julie M. Taylor, *Department Head – Pre-Curriculum*
Academic Support Division
B.A., Mathematics, Emory and Henry College

Wendy Wood Taylor, *Instructor-Radiography*
Health Sciences Division
A.A.S., Radiologic Technology, Johnston Community College
B.S., Business Administration and Managerial and Organizational Development, Mount Olive College

Marilyn E. Terrill, *Instructor-Business Administration*
Business Technologies Division
B.A., Social Science, St. Mary's College of Maryland
M.A., Management Human Relations, Webster College

Donna R. Tesh, *Instructor – English as a Foreign Language*
Academic Support Division
B.A., Spanish, Atlantic Christian College

Carol Imbruce Theuer, *Instructor-English as a Foreign Language*
Academic Support Division
B.S., Education/English, Fordham University
M.A., Education, Maryville University

Donald D. Thompson, *Instructor-Psychology*
Arts, Humanities, and Social Sciences Division
B.A., Psychology, Randolph-Macon College
M.A., Psychology, Hollins College

Florianna Justice Thompson, *Instructor/Coordinator – Early Childhood Associate*
Business Technologies Division
B.S., Family Relations/Child Development, North Carolina Central University

Gail A. Tompkins, *Instructor-Biology*
Mathematics and Sciences Division
B.S., Ecology and Ethology, University of Illinois at Urbana-Champaign
M.Ed., Natural Sciences, University of Tennessee

Patrick Todd Tribble, *Instructor-Information Systems*
Computer & Engineering Technologies Division
B.A., History, North Carolina State University
Microsoft Office Specialist Certifications: Microsoft Office 2000 Master (Access, Excel, PowerPoint, Outlook, and Word); Microsoft Office XP (Access and Excel)
IC3 certification

George Chyau-Chyi Tsai, *Instructor-Advertising and Graphic Design*
Computer & Engineering Technologies Division
B.A., Fine Arts, The Art Center College of Design

Linda Tucker, *Instructor – Office Systems Technology*
Business Technologies Division
B.S., Business & Marketing Education, North Carolina Agricultural & Technical State University
M.S., Business & Marketing Education, North Carolina Central University

Michael Turnage, *Instructor – Biology*
Mathematics & Sciences Division
B.S., Biology and Biology Education, East Carolina University
M.S., Biology and Biology Education, East Carolina University
Ph.D., Genetics & Molecular Biology, University of North Carolina

Joe L. Turner, *Instructor – Automation Engineering Technology*
Engineering Technology Division
B.S., M.S., Electrical Engineering, Mississippi State University

Linda W. Tyler, R.N., *Instructor – Nursing*
Health Sciences Division
B.S., Nursing, Lenoir Rhyne College
M.Ed., Education, Salisbury State University
M.S., Nursing, University of Maryland, Baltimore

Kathryn Yates Tyndall, *Instructor – Pre-Curriculum English*
Academic Support Division
B.S., English, Virginia Commonwealth University
M.A., Counselor Education, North Carolina State University

Sandra L. Utlaut, *Instructor-Nursing*
Health Sciences Division
Certificate, Nursing, Jewish Hospital College of Nursing
B.S., Nursing, Webster University
M.S.N., Nursing, Webster University

Jeralyn Vetterman Valdillez, *Instructor – English*
Arts, Humanities, and Social Sciences Division
B.S., Secondary Education, Old Dominion University
B.A., M.A., English, Old Dominion University

Gina Valentine, *Instructor – Nursing*
Health Sciences Division
B.S., Nursing, Fairleigh Dickinson University
M.S., Nursing, Pace University

Jewell J. Valrie, *Instructor – Pre-Curriculum Mathematics*
Academic Support Division
B.S., Mathematics, Tuskegee University
M.S., Adult and Community College Education, North Carolina State University

Brenda D. Vance, *Instructor – Pre-Curriculum Reading*
Academic Support Division
B.A., English, University of South Carolina
M.Ed., Education, University of South Carolina

Kelly Diane Vetter, *Instructor – Pre-Curriculum Mathematics*
Academic Support Division
B.S., Mathematics, North Carolina State University

Rachel B. Vidrine, *Technical Support/Web Development Librarian*
Library Services Division
B.A., Experimental Psychology, University of South Carolina
M.A., Library and Information Science, University of South Carolina

Dr. John Henry Viehe, *Instructor – Psychology*
Arts, Humanities, and Social Sciences Division
A.A.S., Photography, Rochester Institute of Technology
B.S., Professional Photography, Rochester Institute of Technology
M.Ed., Education, North Carolina State University
M.B.A., Business, Wake Forest University
Ed.D., Adult Education, North Carolina State University

Shannon Vinson, *Instructor – Individualized Learning Center*
B.S., Mathematics, University of Florida
M.S., Applied & Industrial Math, Towson State University

Gregg R. Wallace, *Instructor – Information Systems*
Computer & Engineering Technologies Division
Certificate, Computer and Visual Basic Programming, Wake Technical Community College
Diploma, Air Conditioning, Heating, and Refrigeration, Wake Technical Community College
B.A., Communication, Michigan State University

Dr. Kristen Marie Wallingford, *Instructor-Sociology*
Arts, Humanities, and Social Sciences Division
B.A., Sociology, SUNY at Albany
Ph.D., Sociology, SUNY at Albany

Dr. Kai Wang, *Department Head, Computer Programming*
Computer & Engineering Technologies Division
Ph.D., Geological Sciences, University of North Carolina

Kimberly Renee Ward, *Instructor-Mathematics*
Mathematics and Sciences Division
B.S., Mathematics, University of Notre Dame
M.S., Statistics, University of North Carolina

Dr. Laviece Cox Ward, *Instructor – English*
Arts, Humanities, and Social Sciences Division
B.A., English, University of North Carolina, Wilmington
M.A., Ph.D., English, University of Colorado

Angela E. Washington, *Instructor – Radiography*
Health Sciences Division
A.A.S., Radiologic Technology, Community College of the Air Force
B.S., Radiologic Sciences, Midwestern State University

Sharon Fee Welker, *Instructor-Mathematics*
Mathematics and Sciences Division
B.S., Education, Auburn University
M.A., Education, Pembroke State University

Samuel E. Wells, *Instructor – Machining Technology*
Vocational Technology Division
Certificate, Machinist, Wake Technical Community College
Diploma, Tool, Die, and Mold Making, Wake Technical Community College
A.A.S., Machinist/Tool and Die, Wake Technical Community College

Denise M. Wetli, *Instructor – Physics*
Mathematics and Sciences Division
B.S., Physics, Ball State University
M.A., Earth Science, Ball State University

James B. Wetterau, *Instructor – Computer Programming*
Computer & Engineering Technologies Division
B.E., Electronics Engineering, The City College of New York
M.S., Computer Science, Polytechnic Institute of Brooklyn

Jocelyn Wilcox, *Instructor – Physical Education/Health*
Mathematics & Sciences Division
B.S., Environment Health & Safety Technology, East Carolina University
M.P.H., Public health, East Carolina University

Donald L. Wildman, *Instructor – English*
Arts, Humanities, and Social Sciences Division
A.B., M.A., English, West Virginia University

David Joseph Wilhelm, *Instructor-Business Administration*
Business Technologies Division
B.S.E.E., Electrical Engineering, Purdue University
M.S., Engineering, Purdue University
M.B.A., Business and Finance, The Ohio State University

Alfred E. Williams, *Instructor – Information Systems*
Computer & Engineering Technologies Division
Diploma, Computer Operations, Wake Technical Community College
B.S., Psychology/Mathematics, Southern University
M.S., Urban Studies, University of New Orleans

Jo-Ann Gural Williams, *Instructor – Mathematics*
Mathematics and Sciences Division
B.S., Education, Edinboro State College
M.A., Education/Mathematics, East Carolina University

Mickey Williamson, *Instructor – Criminal Justice Technology*
Business Technologies Division
A.A.S., Criminal Justice, Wake Technical Community College
B.S.S., Special Studies, Campbell University
M.Ed., Education, North Carolina State University

Lorrie G. Williford, *Instructor – Pre-Curriculum Mathematics*
Academic Support Division
B.S., Elementary Education, Longwood College

Louis Jesse Williford, Jr., *Instructor – Mathematics*
Mathematics and Sciences Division
B.A., Mathematics, Pfeiffer College
M.A., Mathematics, University of North Carolina

Frances Diane Wirth, *Instructor/Coordinator, Individualized*
Learning Center
M.S., Instructional Technology, National University

Lee Mark Wittmann, *Instructor – Emergency Medical Science*
Health Sciences Division
A.A.S., Emergency Medical Science, Wake Technical Community College
B.S., Business Administration, Atlantic Christian College

Harold L. Woloschin, *Department Head – Support Technologies*
Computer & Engineering Technologies Division
B.S., Personnel/Business Administration, Marist College
M.S., Computer Science/Information Systems, Marist College

Deborah J. Wood, M. Ed., R.T.-(R.)(M), *Department Head –*
Radiography
Health Sciences Division
Diploma, Rex Hospital School of Radiologic Technology
B.H.S., Radiologic Technology, Campbell University
M.Ed., Education, North Carolina State University
Certified Medical Radiographer (A.R.R.T.)

Alan S. Woodlief, *Department Head – Machining Technology*
Vocational Technology Division
Diploma, Machine Shop Practices, Wake Technical Community College
Diploma, Tool and Die Making, Wake Technical Community College
A.G.E., General Education, Wake Technical Community College
A.A.S., Machining Technology, Wake Technical Community College
B.A.S., Machining Technology, Campbell University

Kathy T. Woodlief, *Instructor – Information Systems*
Computer & Engineering Technologies Division
A.A.S., General Office Technology, Johnston Community College
B.A.S., Applied Science, Campbell University

Roger Brandon Wooten, *Instructor – English*
Mathematics and Sciences Division
B.A., M.A., English, East Carolina University

David R. Worley, *Department Head – Plumbing*
Vocational Technology Division
N.C. Plumbing Contractor's License

Dr. Linxian Wu, *Dean, Bionetwork Learning Center*
Engineering Technology Division
Ph.D., Medical Sciences-Medical Microbiology, University of Alberta

Joel M. Yarborough, *Department Head – Computer Engineering*
Technology
Engineering Technology Division
B.S., Electrical Engineering, North Carolina State University
M.S., Computer Engineering, North Carolina State University

David Hobson Yarley, *Instructor-Biotechnology*
Computer & Engineering Technologies Division
B.S., Chemical Engineering, North Carolina State University
M.S., Chemical Engineering, The University of Virginia

Dr. Karen R. Zagula, *Instructor – Biology*
Mathematics and Sciences Division
B.A., Microbiology, University of New Hampshire
M.S., Microbiology, Virginia Polytechnic Institute and State University
Ph.D., Botany and Plant Pathology, Michigan State University

Matthew D. Zullo, *Instructor – Information Systems*
Computer & Engineering Technologies Division
B.S., Biology, Southern Connecticut State University
J.D., Law, Western New England College

Student Services

Dr. Brenda Allen, *Advisor – Pre-Curriculum Advising Center
Academic Support Division*
B.S., Home Economics Education, Virginia State University
M.S., Adult and Community College Education, North Carolina State University
Ed.D., Adult and Community College Education, North Carolina State University

Jacinta H. Allmond, *Counselor
Student Development Services*
B.A., Industrial Relations, University of North Carolina
M.A., Guidance and Counseling, North Carolina Central University

Edith M. Arrington, *Director of Counseling & Testing Services*
B.A., French, North Carolina Central University
M.A., Student Personnel Administration, Columbia University

Karen Beatty, *Coordinator of Student Services – Western
Wake Campus*
B.S., Communications/Broadcasting, Appalachian State University
M.A., Computer Education, Hampton University

Wallace Dean Blackwelder, *Advisor
Admissions, Advising and Outreach Services Division*
B.S., Music, Appalachian State University
B.S., History, Secondary Education, Appalachian State University
M.A., Higher Education, Developmental Studies, Appalachian State University

Susan Bloomfield, *Director of Admissions and Outreach
Services*
B.S., Education, Ohio University

Laura B. Boyd, *Advisor, College/University Transfer Advising
Center*
Art, Humanities, and Social Sciences Division
B.A., Political Science, Mars Hill College
M.Ed., Counselor Education, North Carolina State University

William S. Bradshaw, Jr., *Admissions Counselor*
B. S., Health and Physical Education, Atlantic Christian College
M.Ed., Education, East Carolina University

Kevin A. Brown, *Student Services Evening Coordinator*
A.A.S., Education, Southside Virginia Community College
B.S., Psychology, Longwood College
M.S., Education – Community and College Counseling, Longwood College

Santrell Marie Caison, *International Student Coordinator*
B.S., Psychology, Xavier University of Louisiana
M.S., Educational Psychology, Southern Illinois University

Nancy A. Cramer, *Advisor, College/University Transfer
Advising Center*
Academic Support Division
A.A., College Transfer, West Hills College
B.A., English/Political Science, California State University – Stanislaus
M.A., Education, East Carolina University

Scarlet T. Edwards, *Counselor*
A.S., Sciences Southeastern Community College
B.A., Psychology, University of North Carolina
M.A., Community Counseling, Appalachian State University

Dallas Foster, Sr., *Admissions Counselor*
A.B., Sociology, Shaw University
M.S., Secondary Guidance, Central Connecticut State College

Sandy Fox, *Coordinator – Deaf and Hard of Hearing*
NCICS-B Certification

Patsy L. Hawkins, R.N., *Admissions Counselor, Health
Sciences*
B.S., Nursing, University of Nebraska
M.S., Nursing, University of North Carolina

Carolyn Hicks, *Counselor*
Diploma, Junior College Diploma, St. Mary's Junior College
B.A., Psychology, Meredith College
M.A., Education, East Carolina University

Regina M. Huggins, *Director, Financial Aid*
B.S., Industrial Relations, University of North Carolina
B.S., Psychology, University of North Carolina

Bonnie A. Jones, *Admissions Counselor, Health Sciences*
B.A., Art Education, Windgate College
Yvonne Johnson, *Administrator Testing Office*
B.S., Social Work, East Carolina University

Rosemary Kelly, *Associate Registrar*
A.A.S., Hospitality Management, St. Petersburg Junior College
B.S., Hotel and Resort Management, Rochester Institute of Technology
M.A., Professional Studies, Montclair State College

Janet T. Killen, *Director, Disability Support Services*
B.A., Mathematics, Meredith College
M.Ed., Special Education, North Carolina State University

Deborah C. Love, *Outreach and Admissions Officer*
A.A.S., Business Administration, Wake Technical Community College
B.T., Business Technology, Appalachian State University

Gwendolyn I. Matthews, *Director, College/University Transfer
Advising Center*
Academic Support Division
B.A., English, Meredith College
M.A., English, Columbia University

J. Perry Monds, *Director, Computer Information Systems Advising Center*
Computer & Engineering Technologies Division
A.B., Psychology/Sociology, East Carolina University
M.A.Ed., Counseling Education, East Carolina University

Kimberly A. Phillips, *Mathematics Learning Disability Specialist*
B.A., Psychology, Wells College
M.A., School Psychology, Ball State University

Catherine I. Poff, *Learning Disability Specialist*
B.S., Special Education, Southern Connecticut State University
M.S., Special Education, University of Kansas

Robin R. Russell, *Admissions Officer/Recruiter*
A.A., Arts, Peace College
B.S., Social Work, East Carolina University
M.A., Community Counselor, Campbell University

Shelley J. St. Aubin, *Admissions Counselor*
B.A., Marine Biology, University of North Carolina, Wilmington
M.A., Community Counselor, Campbell University

Elaine M. Sardi, *Coordinator, Learning Disabilities*
B.S., Mental Retardation, Clarion State College
M.Ed., Reading, Clarion University

Christy W. Shields, *Coordinator of Student Services, Health Sciences Campus*
B.S., Social Work, East Carolina University
M.A.Ed., Education, East Carolina University

Nicole O. Thompson, *Advisor*
B.S., Marriage/Family Counseling, East Carolina University
M.A., Education, East Carolina University
LPC, North Carolina Board of Licensed Professional Counselors
NCC, National Board for Certified Counselors

Tyra Thompson, *Assistant Registrar – Student Records*
A.A., Management, University of Maryland
B.S., Management, Park College

Thu Washington, *Counselor*
B.A., Business Administration, Campbell University
M.Ed., Education, North Carolina State University
National Certified Counselor

Annette Williams, *Associate Financial Aid Director*
A.A.S., Early Childhood, Wilson Technical Community College
B.A., Elementary Education, Shaw University

Regina E. Willis, *Coordinator – Disability Support Services*
B.A., Speech, Communication and Theatre, Trenton State College
M.S., Counselor Education, Western Maryland College

Lori A. Woodruff, *Admissions Counselor*
B.S., Office Systems Management, James Madison University
M.A., Counseling, Hampton University

Continuing Education

Basic Skills

Lourdes O. Shelley – Dean

B.A., Psychology, University of Puerto Rico;
M.S., Adult and Community College Education, North Carolina
State University

Susan E. Ballard, Instructor, English as a Second Language
B.A., Speech Communication, University of North Carolina

Willie Mae Blalock, Coordinator/Instructor – Resource Center
B.A., Business Education, St. Augustine's College

Tyson G. Carr, Instructor, English as a Second Language
B.S., Business management, North Carolina State University

**Ellen E. Cobb, Instructor/Coordinator, Special Populations and
HEP**
B.F.A., Interior Design, University of Georgia
M.A., Art History, University of Georgia

**Kathryn M. Covington, Instructor/Coordinator, Special
Populations and HEP**
B.A., Romance Languages, Spanish, University of North
Carolina

Edith Dell Cowper, Coordinator, Resource Center
B.A., History, Russell Sage College
B.A., Arts Speech, University of North Carolina
M.A., ESOL, School for International Training

**Daniel William Degen, Instructor, Immured Populations and
GED**
B.S., Criminal Justice, Curry John Jay College of Criminal
Justice

Steven N. Duncan, Director, HEP/Special Populations
B.A., Speech Communication, North Carolina State University
M.A., Liberal Arts, North Carolina State University
Ed.D., Education, East Carolina University

**Louise P. Eiswirth, Instructor – Basic Skills, English as a
Second Language**
B.A., History, Bellarmine College
M.Ed., Education, North Carolina State University

Charles Gregory Felkins, HEP Outreach Counselor
B.A., Interdisciplinary, University of Alabama
M.A., English as a Second Language, University of Alabama

Michelle Fox, Recruiter/Retention Specialist
B.A., Psychology, Queen's College
M.A., Educational Psychology, University of Tennessee

**Monica Gemperlein, Recruiter/Retention Specialist
Basic Skills**
B.A., Elementary Education, University of Florida
M.Ed., Elementary Education, University of Florida

Gloria Ann Hicks, Technical Assistant to GED Chief Examiner
B.S., Business Administration – Marketing, North Carolina A&T
State University

**Sissel Mary Hoff, Instructor – English as a Second Language
Academic Support Division**
B.A., Social Education, Rogaland Vernepleierhogskole

Robin M. Hoff-Abdelilah, Recruiter/Retention Specialist
B.S., Hotel and Food Administration, Boston University
M.S., Curriculum and Instruction, Long Island University

Paul F. Jenkins, Recruiter/Retention Specialist
B.S., Bible Studies, Baptist Bible College
M.S., Counseling Ministries, Baptist Bible College

Michel B. Kirk, Recruiter/Retention Specialist
A.M., Microcomputer Accounting, Chaparral Career College
B.A., Spanish, Meredith College

Josephine T. Lamberto, Instructor – GED
B.A., Business, Meredith College

Nettie M. Lowery, Instructor/Coordinator, Correction Education
B.A., Business Administration, Winston-Salem State University

Roberta Mahatha, Instructor, English as a Second Language
B.A., French, Denison University

Patricia A. Money, Instructor, English as a Second Language
B.A., Psychology, Meredith College

Paula Montague, Resource Center Director
B.A., Business Education, St. Augustine's College

Lee R. Moose, Director, Immured Populations
B.A., History, University of North Carolina
M.Div., Religious Studies, Southeastern Baptist Theological
Seminary

Nancy F. Morabito, Director, Compensatory Education
B.A., Art, College of New Rochelle

James M. Myers II, Site Director
B.S., Accounting, University of North Carolina, Wilmington
M.B.A., Business Administration, Campbell University

Susan M. O'Neill, Recruiter Retention Specialist
B.S., Science Education, North Carolina State University

Ellen Overington, Recruiter/Retention Specialist
B.A., Literature, University of North Carolina, Asheville

**Susan B. Payne, Director – Community Outreach and
Assistant to the Dean**
B.A., M.A.T., Elementary, Middle, & Special Education,
Lynchburg College

Anita M. Pearson, *Adult High School/GED Coordinator*
A.B., Speech, South Carolina State College
M.A., Speech Pathology and Audiology, South Carolina State College

Juanita Ruth Perry, *Volunteer Coordinator/Recruiter Retention Specialist*
B.S., Biblical Studies, Southeastern Baptist Theological Seminary

Linda K. Ray, *Recruiter/Retention Specialist*
B.A., Music and Music Education, North Carolina State University
M.Ed. Education, North Carolina State University

James S. Purnell II, *Technical Assistant to the Director, Assessment/Retention and Training*
B.A., History, Hobart College

Baerbel Schilz, *Coordinator of Assessment/Retention and Training*
A.A.S., Accounting, Rock Valley College
B.S., Business Administration/Management, Meredith College

Maurice Lynn Shearin, *Instructor, English as a Second Language*
B.A., Psychology, University of North Carolina

Diane Steinbeiser, *Volunteer Coordinator*
B.A., English, University of Colorado

Sybil Sutton, *Instructor – Compensatory Education*
B.S., Business Administration, St. Augustine's College

Mary G. Sykes, *GED Chief Examiner – Basic Skills*
B.A., English, Lincoln University
M.Ed., Remedial Reading, Lincoln University

Michele Hall Tancredi, *Instructor/Coordinator – Compensatory Education*
B.A., Sociology, Trenton State College

Julia A. Tennant, *Instructor/Job Coach – Compensatory Education*
B.S., Sociology, Suny College

Ray L. Tims, *Coordinator of Distance Learning*
B.A., History, North Carolina State University
M.A., Education, University of Phoenix

David B. West, *Instructor, English as a Second Language*
B.A., Spanish, Earlham College
M.P.P., Public Policy Studies, Duke University

Celia B. Whitehead, *Instructor – GED*
B.S.H.E., Child Development and Family Relations, University of North Carolina

Harolyn S. Whitehead, *Basic Skills Counselor*
B.A., French, University of South Carolina
M.Ed., Elementary Education, Francis Marion College

Business and Industry Services

Wayne A. Loots, CPA – Dean
B.B.A., General Business, University of Wisconsin

Katherine M. Booher, *Director, New and Expanding Industry*
B.S., Education, Indiana University of Pennsylvania

Mary Brady, *Director of Corporate Training and Workforce Development*
B.A., Sociology – Social Studies, University of North Carolina, Pembroke
M.A., Education Administration, University of North Carolina, Pembroke

Kenneth Lee Dillo, *Director, Small Business Center*
B.S., Printing Management, West Virginia Institute of Technology
M.S., Human Resources, American University

Tiffany Thompson, *Director of Professional Development*
A.A., College Transfer, Peace College
B.A., English, University of North Carolina
M.A., Adult Education, East Carolina University

William L. Terrill, *Director, Apprenticeship and Focused Industry Training*
B.S., Engineering, United States Military Academy
M.S., Business Administration and Management, Boston University
M.Ed., Occupational Education, North Carolina State University

Evening Division and Weekend College

Martha O. Williams – Dean
B.A., English – Writing, East Carolina University
M.A., Adult Education, East Carolina University

Susan H. Ajygin, *Instructional Supervisor*
B.A., English, Duquesne University
M.A., English, University of North Carolina

Katina N. Beasley, *Instructional Supervisor Evening Division*
B.S., Child Development, North Carolina A&T State University
M.S., Adult Education, North Carolina A&T State University

Larry M. Buie, Jr., *Instructional Supervisor*
A.A.S., Business Administration, Wake Technical Community College
B.S., Management and Organization Development, Mt. Olive College

Kathryn Butler, *Director, Community Service Programs*
B.A., Sociology, University of North Carolina

Karen L. Holding-Jordan, *Instructional Supervisor*
B.A., Psychology, Meredith College
M.A., School Administration, North Carolina State University

Raul A. Herrera, *Instructor – Spanish*
B.S., Professional Management, Nova Southeastern University
M.B.A., Business Administration, Nova Southeastern University
M.A., Spanish, University of Alabama

Duncan M. Shaw, *Instructional Supervisor*
B.S., Zoology, University of North Carolina
M.P.H., Maternal and Child Health, University of North Carolina

Christy S. Sweatt, *Instructional Supervisor*
B.S., Public Administration, Central Michigan University
M.S., Public Administration, Central Michigan University

Public Safety and Service Occupations Division

Anthony M. Caison, *Dean*

B.A., Radio – Television, Southern Illinois University
M.B.A., Business Administration, Southern Illinois University

Billy Bostic, *Instructor, Correction Education*
B.B.A., Information Systems, Campbell University

Wayne Brower, *Director – Fire Services*
A.A.S., Fire Protection, Guilford Technical Community College
A.A.S., Fire Protection Technology, Durham Technical Community College
B.S., Business Administration, North Carolina Wesleyan College
M.P.A., Public Affairs, University of North Carolina

Dan F. Clower, Jr., *Instructor – Correction Education*
B.F.A., Fine Arts, Auburn University

Ann E. Daves, *Director of Service Occupations*
A.A.S., Hotel-Restaurant Management, Asheville-Buncombe Technical Institute

Todd D. Dettman, *Regional Fire Rescue Coordinator*
A.A.S., Fire Protection Technology, Wilson Technical Community College
A.A.S., Business Administration, Nash Community College

Dr. James Thomas Edwards, Jr., *Director of Public Safety & Home Land Security*
B.S., Criminal Justice, North Carolina Wesleyan College
M.S., Administration, Central Michigan University
Ed.D., Adult and Community College Education, North Carolina State University

Cindy L. Field, *Coordinator/Instructor, Law Enforcement*
B.S., Criminal Justice, Brenau College

Barbara F. Harris, *Instructor, Correction Education*
A.A.S., Culinary Technology, Wake Technical Community College

Dixie B. Harris, *Instructor – Correction Education*

Ronald E. Holloman, *Law Enforcement Training Specialist*
A.A.S., Architectural Technology, Roanoke-Chowan Community College
B.A., Criminal Justice, Pfeiffer College

Paul C. Houghton, *Instructor – Correction Education*
Licensed N.C. Contractor

Mike Meyer, *Instructor – Correction Education*
A.A.S., Vocational Instructors Program, Lenoir Community College

Wayne Mills, *Instructor – Correction Education*
Diploma, Air Conditioning, Heating, and Refrigeration, Wake Technical Community College
Diploma, Electrical Installation and Maintenance, Wake Technical Community College
North Carolina Heating and Air Conditioning License

Lonette Mims, *Director – Correction Education*
B.A., Sociology, North Carolina State University

Angela Joyce Mizelle, *Coordinator/Instructor, Law Enforcement*
B.S., Criminal Justice, North Carolina Wesleyan College

Deloris D. Okine, *Instructor – Correction Education*
B.S., Business Administration, St. Augustine's College

Dr. David Osborne, *Instructor – Correction Education*
B.A., Psychology, Hiram College
M.A., Ph.D., Speech Communication, Ohio State University

James Charles Rose, *Instructor – Correction Education*
B.S., M.S., Education, State University of New York

Walter W. Stewart, *Law Enforcement Coordinator*
A.A.S., Criminal Justice, Wake Technical Community College

Mary Ragland Thomas, *Instructor – Correction Education*
B.A., Early Childhood Education, St. Augustine's College

Amanda K. Tolar, *Instructor – Correction Education*
B.S., History, East Carolina University

Phyllis C. Watts, *Instructor - Correction Education*
B.S., Elementary Education, East Carolina University

Linda W. Wehner, *Coordinator of Administrative Programs*
A.A.S., Legal Secretary, Western Piedmont Community College
B.S., Business Education, East Tennessee State University
M.Ed., Adult and Community College Education, North Carolina State University

Education Services and Technology Division

Samuel Strickland III, Dean

A.A., 4VLM Metals Technology,
Community College of the Air Force

A.A., Institute of Technology and Military Science, Community
College of the Air Force

B.A., Psychology, Saint Leo College

M.A., Adult Education, University of South Florida

Rosalyn E. Bartley, Instructor, Human Resource Development

B.S., Business Administration, Mount Olive College

Heather H. Basnight, Continuing Education Registrar

B.S., Mathematics, North Carolina State University

Sarah L. Boswell, Director, Human Resource Development

B.S., Biology, Wayne State College

M.A., Adult Education, Kansas State University

**Donna Mason Braswell, Instructor – Human Resources
Development, Basic Skills**

A.B., Psychology, Elon College

M.A., Student Development, Appalachian State University

Darlene C. Bullock, Coordinator, HRD – Career Start

B.A., Sociology, Shaw University

Lynn E. Kavcsak, Instructor, Human Resource Development

B.A., Spanish, University of Minnesota

M.S., Hospitality Administration, University of Wisconsin-Stout

**Ernestine D. Ledbetter, Coordinator, Non-Credit and
Weekend Computer Education**

B.S., M.Ed., Mathematics, University of North Carolina

M.A., Telecommunications Management, Washington
University in St. Louis

Andrea V. Mace, Director, Special Project

B.S., Child Development, Meredith College

Maribel M. Maciel, Coordinator/Instructor, Spanish Programs

B.S., Communications and Electronic Engineering, National
Polytechnic Institute

**Azalee O. Sanders-Bruce, Instructor, Human Resource
Development**

B.A., Public Administration, Shaw University

M.S., Adult Education, North Carolina Agricultural and
Technical State University

Toinette M. Young, Case Manager, HRD-Career Start

B.A., Sociology, Shaw University

Support Personnel

Brenda Foster Allen Advisor, Admissions, Advising and Outreach, Admissions & Counseling Services
 Jacinta H. Allmond Counselor, Student Life Services
 Sharon H. Ames Information Assistant, Registration & Student Records Services
 Christopher D. Andrews Supervisor, Grounds Maintenance, Facility Services
 Edith M. Arrington Director of Counseling and Testing Services, Student Life Services
 Lori Ann Barbour Secretary/EMS and Adm, Health Sciences
 Denise Hampton Barton Director of Human Resources, College Development
 Heather H. Basnight Continuing Education Registrar,
 Katherine Diane Beasley Enrollment Assistant I, Registration & Student Records Services
 Karen A. Beatty Coordinator of Student Services, Admissions & Counseling Services
 Betsy Joyce Bell Office Assistant, Registration & Student Records Services
 Burnette L. Bell Reference Librarian, Library, Learning, & Media Services
 Barbara D. Bendle Coordinator of Campus Information Services, Admissions & Counseling Services
 Robert T. Benton Facilities Manager, Facility Services
 Wallace Dean Blackwelder Advisor, Admissions, Advising and Outreach
 Betty W. Blalock Administrative Assistant, Student Services General
 Jeremy R Blalock IT Technician, Information Technology Services
 Susan R. Bloomfield Director of Admissions and Outreach Services, Admissions & Counseling Services
 Vera Lee Bollten Financial Aid Assistant, Student Life Services
 Courtney Rechellan Boney Technical Assistant, Facility Services
 Katherine M. Booher Director Business/Industry Training, Business & Industry
 Sarah L. Boswell Director of HRD, Education Services & Technology
 Cynthia Crider Boulus Telephone Information Assistant, Student Life Services
 Gerald Willis Boyd Warehouseman, Business Services
 Laura Boisvert Boyd Advisor, Admissions, Advising and Outreach, Admissions & Counseling Services
 Ann W. Boyette Coordinator/ Distance Learning/Noncredit Computer Education
 Louise C. Bradshaw Receptionist/Office Assistant, Registration & Student Records Services
 William Southall Bradshaw Jr. Admissions Counselor, Admissions & Counseling Services
 Mary O. Brady Director, Corporate Training and Workforce Development, Business & Industry
 Wanda S. Brewer Secretary, Basic Skills
 Peggy T. Britt Secretary, Arts, Humanities & Social Science
 Virginia Perry Brodie Records Technician, Public Safety & Service Occupations
 C. Wayne Brower Director Fire Services, Public Safety & Service Occupations
 Kevin A. Brown Student Services Evening Coordinator, Admissions & Counseling Services
 Delores F. Brubaker Administrative Assistant, Continuing Education
 Samuel E. Bryant Painter/Maintenance Worker, Facility Services
 Heather Lynn Buck Administrative Assistant/Accounting Technician, Foundation
 Melissa Harris Buff Human Resources Technical Assistant, College Development
 Larry M. Buie Jr. Instructional Supervisor, Evening
 Darlene C. Bullock Coordinator, Job Skills HRD Program, Education Services & Technology
 Lee R. Bullock Assistant Facility Manager, Facility Services
 John W. Burnett General Facilities Worker, Facility Services
 Kathryn M. Butler Director of Community Service Programs, Public Safety & Service Occupations
 Santrell Marie Caison International Student Coordinator, Admissions & Counseling Services
 Sally H. Campbell Records Assistant I, Registration & Student Records Services
 Michelle Thomason Capps Transfer Credit Evaluation Coordinator, Registration & Student Records
 Marilyn M. Carney Serials Librarian, Library, Learning, & Media Services
 Tina Partin Carter Student Activities Coordinator, Student Life Services
 Joanne S Check Coordinator, NEIT, Business & Industry
 Barbara Ann Chelednik Secretary, Arts, Humanities & Social Science
 Betty Beasley Clevenger Executive Assistant, President's Office
 Mary Yvonne Cluff Administrative Assistant, Curriculum Education
 Monika Reinhold Collier Office Assistant - Mathematics, Mathematics & Sciences
 Otis Morton Congleton Executive Director, Foundation, Foundation
 Patricia Sue Cooper Evaluation Assistant I, Registration & Student Records Services
 Rhonda G. Cotton Enrollment Assistant II, Registration & Student Records Services
 Edith D. Cowper Coordinator, Resource Center, Basic Skills
 Barry Joseph Craig Accounting Assistant I, Accounting Services
 Nancy A. Cramer Advisor, Admissions, Advising and Outreach
 Katherine Martin Crane Financial Aid Assistant, Student Life Services
 Michael Jerome Cromartie Recruiter-Engineering Technology,
 Faith Christian Crum Administrative Assistant, Business Services
 Michael Alan Crumpton Director of Library Services, Library, Learning, & Media Services

Ann E. Daves Director of Service Occupations, Public Safety & Service Occupations
Sharon Braswell Davis Business Services Assistant II, Business Services
Kelly Pope Deal Human Resource Technician, College Development
Brenda Gilbert Deaton Publications Technician, College Development
Todd Douglas Dettman Regional Fire Rescue Coordinator, Public Safety & Service Occupations
Kenneth Lee Dillo Director, Small Business Center, Business & Industry
Ophelia T Donaldson Secretary/Bionetwork Capstone Center,
Suvanida Duangudom Outreach Services Librarian, Library, Learning, & Media Services
Steve N. Duncan Director, HEP/Special Populations, Basic Skills
Leigh Anne Dupree Director IT Service & Support, Information Technology Services
Gloria Watson Edwards Administrative Assistant, Basic Skills
Scarlet Tison Edwards Counselor, Student Life Services
Brandi N. Ellis Secretary, Business Education
Marvin Lee Faulcon Duplicating Machine Operator, Business Services
Scott Alan Fellows Warehouse Supervisor, Business Services
Susan Willis Fenn Programmer Analyst, Information Technology Services
Kyle Matthew Fescoe Help Desk Assistant, Information Technology Services
Renee Minnie Fletcher Accounting Assistant I, Accounting Services
Twana J. Fogg Assistant Student Activities Coordinator, Student Life Services
Dallas Foster Sr. Admissions Counselor, Admissions & Counseling Services
Rhonda Vernelson Fuller Administrative Assistant College Development
Ruth R. Gardner Human Resources Assistant, College Development
Teresa Dawkins Gardner Accounting Assistant II, Accounting Services
Beverly R. Gilbert Secretary, Basic Skills
Wesley W. Gilmore Jr. IT Voice Engineer, Information Technology Services
David A Goldstein IT Technician, Information Technology Services
Mary Huff Green Telephone Information Assistant, Student Life Services
Robert Steven Gregory Security Manager, Security Services
Mary Chris Griffin Testing Assistant, Academic Services
Tonya O. Grimes Equipment Coordinator, Business Services
Brenda Kay Grizzard Enrollment Assistant I, Registration & Student Records Services
Vickie L. Grove Coordinator of Cooperative Education, Student Life Services
Thomas Edward Guettler Senior IT Analyst, Information Technology Services
Ann Halpin Event Planning Coordinator, College Development
Melissa Gerald Hampton Information Assistant, Registration & Student Records Services
Stephen Ray Hardin Assistant Facility Manager, Facility Services
Bonnie L. Harris Secretary, Basic Skills
Silke H. Hasselberg Technical Assistant, Continuing Education
Patsy L. Hawkins Admissions Counselor, Admissions & Counseling Services
Ciara Marie Healy Media Services Librarian, Library, Learning, & Media Services
Carolyn Ralphs Hicks Counselor, Student Life Services
Gloria Ann Hicks Technical Assistant to the GED Examiner, Basic Skills
Carol Ellen Himes Facilities Engineering Officer, Facility Services
Karen Louise Holding-Jordan Instructional Supervisor, Evening
Russell Lee Hollingsworth Warehouseman, Business Services
Salanna D Holmes-Williams Enrollment Assistant I, Registration & Student Records Services
Brenda H. Honeycutt Secretary, Business & Industry
Regina Marie Huggins Director of Financial Aid, Student Life Services
Kimberly Ann Jackson Office Assistant/HRD, Education Services & Technology
Peggy F. Jarman Office Assistant/Receptionist, Public Safety & Service Occupations
Bonnie P. Johnson Records Assistant I, Registration & Student Records Services
Deborah B. Johnson Secretary-Curriculum Services, Curriculum Education General
Lesia Kay Johnson Accounting Assistant II, Accounting Services
Yvonne Johnson Administrator/Testing Office, Student Life Services
Bonnie Alice Jones Outreach and Admissions Officer, Admissions & Counseling Services
Connie Renee Jones Accounting Assistant II, Accounting Services
Sandra Jones Secretary, Academic Services
Vickie D. Jones Administrative Assistant, Executive Vice President
Kimberly M Kathan Early College High School Director - Grant, Academic Services
Christopher Alan Keefer Director/Systems, Information Technology Services
Joleigh Collette Kelley Secretary-Admissions & Counseling, Admissions & Counseling Services
Rosemary J. Kelly Associate Registrar, Registration & Student Records Services
Janet T. Killen Director, Disability Support Services, Student Life Services
Elizabeth A. Knocklein Site Coordinator/SPDC, Education Services & Technology
April Marie Koonce Receptionist, Health Sciences
Lorraine P. Krichko Information Specialist - Circulation, Library, Learning, & Media Services

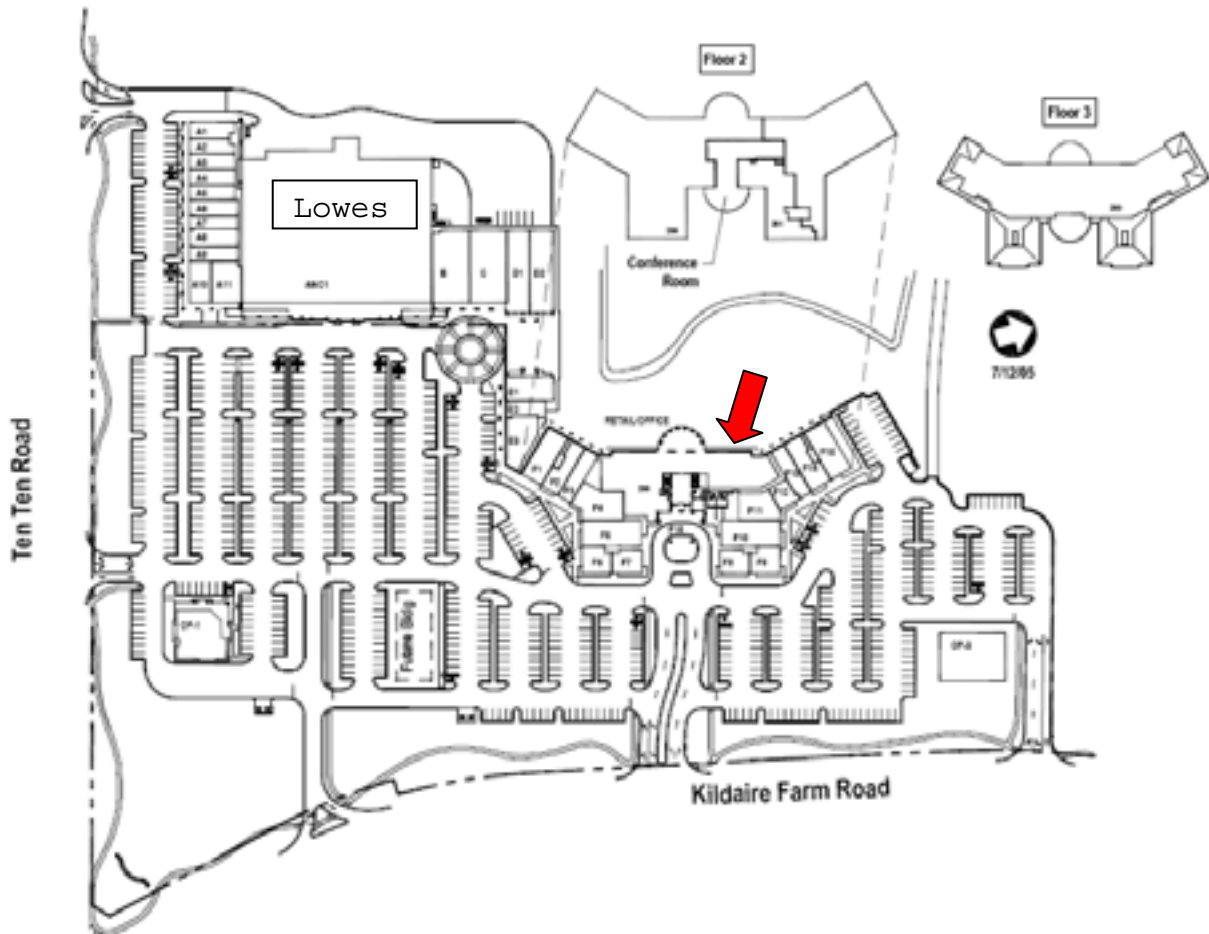
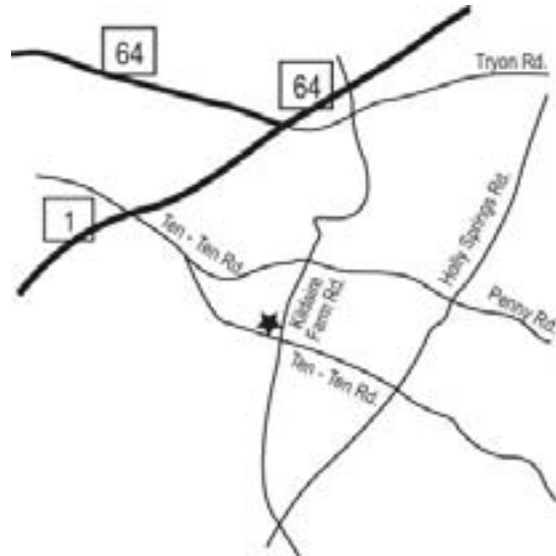
Crescentia L. Kuenzler..... Grants/Construction Accountant, Accounting Services
Stephanie Spofford Lake Director of Development, Foundation
Megan Mae Landwehr Instructional Supervisor, Evening
Frederick Q. Latimore General Facilities Worker, Facility Services
Veronica Lawton Graphic Design Technician, College Development
Carolyn B LewisHR Analyst, College Development
Debra Ann LittleFinancial Aid Assistant, Student Life Services
Deborah Colwell Love..... Outreach and Admissions Officer, Admissions & Counseling Services
Dianne Loyd Curriculum Data Management Coordinator, Registration & Student Records Services
Kimberly D. Loyd..... Accounting Assistant I, Accounting Services
Audra H. Luckham Secretary, Cooperative Education, Academic Support Division
Barbara E Lyczkowski..... Secretary, Vocational Education
Andrea Virginia Mace..... Director - Special Projects, Public Safety & Service Occupations
Suzanne E MacEachern Office Assistant, Public Safety & Service Occupations
Megan Elizabeth Martin Grants and Events Planning Assistant, College Development
Gwendolyn I. Matthews.....Director Transfer Advising Center, Admissions & Counseling Services
William G. Matthews Auxiliary Services Supervisor, Business Services
Anna Clay Allison McAdams..... Recruiter - Computer Information Systems,
Rasheeda Enjule McAllister Secretary/Student Center, Health Sciences
Amy A. McCauley.....Assistant Accounting Manager, Accounting Services
Carlos Remaris McCormick Manager, Instructional Technologies, Information Technology Services
Jerome McDowell..... Patient Care Coordinator, Health Sciences
Amy C. McGee..... Business Services Assistant II, Business Services
Willie L. McKoy..... General Facilities Worker, Facility Services
Marilyn W McNeely Technical Writer, College Development
Dianne Medlin Registration Assistant, Student Life Services
Deborah G Miller Cashier/Health Sciences Campus, Health Sciences
Lonette Evans Mims..... Director - Corrections Education, Public Safety & Service Occupations
Ronda D Minor..... Secretary, Computer & Engineering Technologies
Sherry Moss Mitchell..... Director, Communications & Marketing, College Development
John Perry Monds..... Advisor, Admissions, Advising and Outreach, Admissions & Counseling Services
Paula Y. Montague..... Resource Center Director, Basic Skills
Lee R. Moose..... Director of Immured Populations, Basic Skills
Nancy F. Morabito..... Director, Compensatory Education, Basic Skills
Michael Kent Morgan Microbiology Laboratory Technician,
Jeannette M. Moss Director of Placement, Student Life Services
Melissa Renee Moyer Secretary, Student Life Services
Amy R. Murray Application Support Technician, Information Technology Services
James Madison Myers II Site Director-AEC, Basic Skills
Michelle Nicholson VA Records Assistant, Registration & Student Records Services
Timothy O. Nicholson..... Manager, Administrative Computing, Information Technology Services
Alvin L. Nix Instructional Supervisor, Evening
Allison Renee Norris Telephone Information Assistant, Student Life Services
Esther O. Ogirri Reference Services Librarian, Library, Learning, & Media Services
James Alan Opdenbrouw..... Project Manager, Facility Services
Cary Wayne Osborne..... IT Analyst, Information Technology Services
Demetra Tillman Overton..... Chemistry Lab Technician,
Carolyn Paez..... Records Assistant I, Registration & Student Records Services
Susan B. Payne Director, Community Outreach & Assistant to the Dean, Basic Skills
Anita M. Pearson..... Adult High School/GED Coordinator, Basic Skills
Nicole W. Penny..... Programmer/Analyst, Information Technology Systems
Juanita Ruth Perry Volunteer Coordinator/Recruiter Retention Specialist, Basic Skills
William D. Phillips..... Library Assistant, Library, Learning, & Media Services
Jason A Pickard Senior Systems Analyst, Information Technology Services
Rita Jordan Plum..... Human Resources Assistant, College Development
Catherine Isabel Poff Learning Disabilities Specialist, Student Life Services
Bridget L Pollard..... Lab Technician, Mathematics & Sciences
Donald Ray Poole Painter/Maintenance Worker, Facility Services
Jimmy L. Price..... Supervisor, Bldg Maintenance, Facility Services
Lorraine H. Purta..... Assistant Test Administrator, Student Life Services
Peggy G. Quinn..... Health Sciences Librarian, Library, Learning, & Media Services
Pamela Anne Rakes Secretary, Public Safety & Service Occupations
Marie Quinn Redwine..... Office Assistant, Education Services & Technology
Julia Ollie Reynolds..... Secretary Cooperative Education, Student Life Services
Belinda A. Rice..... Secretary, Registration & Student Records Services
Joseph Frederick Rich II Duplicating Machine Operator, Business Services

Bonnie Sherman Riddle	Institutional Services Assistant, Business Services
Beverly Leigh Rittner	Office Assistant-ILC, Library, Learning, & Media Services
Kristen Michelle Rivers	Financial Aid Assistant, Student Life Services
Paula Maria Roberts	Degree Audit Coordinator, Registration & Student Records Services
Barbara Ann Robinson	Secretary, Computer & Engineering Technologies
Lorianne Parks Robinson	Curriculum Data Assistant I, Registration & Student Records Services
Tracy Ann Rockwell	Office Assistant, Registration & Student Records Services
Chris A Roix	Receptionist, Business & Industry
Marcia J. Roller	Office Assistant, Registration & Student Records Services
Linda D. Rollin	Secretary, Business Education
Brena Elise Ross	Financial Aid Assistant, Student Life Services
Robin Reed Russell	Outreach and Admissions Officer, Admissions & Counseling Services
Bryan K. Ryan	Director of Planning and Research, College Development
Frances W. Sanderson	Graphic Design Specialist, College Development
Jared M Sandine	IT Analyst, Information Technology Services
Laura Kay Saparilas	Test & Criminal Background Check Administrator, Health Sciences
Elaine Marie Sardi	Coordinator, Learning Disabilities, Student Life Services
Rebecca I. Sayers	Secretary, Library, Learning, & Media Services
Baerbel Schilz	Coordinator of Assessment/Retention and Training, Basic Skills
Marla Boone Seagroves	Secretary, Library
Patricia H. Sexton	Information Specialist-Collection Development, Library
Bonnie Corbett Shattuck	Records Assistant I, Registration & Student Records Services
Duncan MacGregor Shaw	Instructional Supervisor, Evening
Ralph Benjamin Shaw	Facility Technician and Bionetwork Bus Driver,
Christy Williams Shields	Coordinator of Student Services, Admissions & Counseling Services
Cynthia J Simmons	Office Assistant/Records Technician, Public Safety & Service Occupations
Mohani K Singh	Secretary, Arts, Humanities & Social Science
Terri A Singleton	Patient Care Coordinator, Health Sciences
Beverly N. Smith	Curriculum Data Assistant I, Registration & Student Records Services
Charles K. Snelling	General Facilities Worker, Facility Services
Princess M. Solomon	Technical Assistant, Admissions & Counseling, Student Services
Frank Alan Spikes	IT Analyst, Information Technology Services
Shelley Jean St. Aubin	Outreach and Admissions Officer, Admissions & Counseling Services
Julie Ann Stamey	Office Assistant, Public Safety & Service Occupations
Billy Joe Stephenson Jr.	Carpenter, Facility Services
Penny S. Stephenson	Office Assistant, Student Life Services
Tammy S Stephenson-Hamid	Secretary Planning and Research, College Development
Walter W. Stewart	Blet Coordinator, Vocational Education
Laura Elizabeth Swann	Business Services Assistant II, Business Services
Christy Suzanne Sweatt	Instructional Supervisor, Evening
Mary D. Sykes	GED Chief Examiner, Basic Skills
Wanda M. Tanner	Telephone Information Assistant, Student Life Services
Marla L. Tart	Accounting Manager, Accounting Services
Mary Ann Taylor	Secretary, Academic Services
Scott P. Taylor	IT Technician, Information Technology Services Division
William Lester Terrill	Director of Apprenticeship/Fit, Business & Industry
Rhonda T. Thomason	Secretary, Arts, Humanities & Social Science
Nicole Olivia Thompson	Advisor, Admissions, Advising and Outreach,
Tyra B. Thompson	Assistant Registrar, Registration & Student Records Services
Raymond Lindsey Tims	Coordinator of Distance Learning and Communications, Basic Skills
Patsy W. Turlington	Receptionist/Switchboard Operator, Admissions & Counseling Services
Gwendolyn Johnson Underwood	Benefits Specialist, College Development
Rachel B Vidrine	Web Services Librarian, Library, Learning, & Media Services
Debra Slack Wallace	Business Manager, Business Services
Thu Thao Washington	Counselor, Student Life Services
Carole T. Weatherford	Media Relations Specialist, College Development
Dale Ellis Weaver Jr.	Manager, Web Team, Information Technology Services
Linda W. Wehner	Coordinator, Administrative Programs, Public Safety & Service Occupations
Martha Larue Wesson	Secretary, Public Safety & Service Occupations
Ann Rascoe Westbrook	Accounting Assistant II, Accounting Services
Christian Phillip Wheeler	Director/Network Services, Information Technology Services
Harolyn S. Whitehead	Basic Skills Counselor, Basic Skills
Deborah A Whitley	Records Assistant I, Registration & Student Records Services
Lori A. Wicker	Business Services Assistant, Business Services
Tammi L Wilcox	Secretary-Distance Education, Academic Services
Amy Carol Williams	Receptionist-Financial Aid, Student Life Services

Annette Williams Associate Financial Aid Director, Student Life Services
 Brenda H. Williams Receptionist - Resource Center AEC (12M), Basic Skills
 Sandra E. Williams Secretary-Student Life Services, Student Life Services
 Regina E. Willis Coordinator-Disability Support Services, Student Life Services
 Susan Elizabeth Winfrey Web Designer Specialist, Information Technology Services
 Barbara A. Winston Office Assistant, Public Safety & Service Occupations
 Denis Glyn Winters Assistant Security Manager, Security Services
 Alec W. Woodruff IT Systems Engineering, Information Technology Services
 Troy Lemons Woodruff Student Center Monitor, Student Life Services
 Toinette Michelle Young JSHRD Career Start Manager, Education Services & Technology
 Ernest O. Youngblood Helpdesk Analyst, Information Technology Services
 Fred Zahn Manager, Network Team, Information Technology Services

Western Wake Campus at Millpond Village

3434 Kildaire Farm Road
Cary, NC



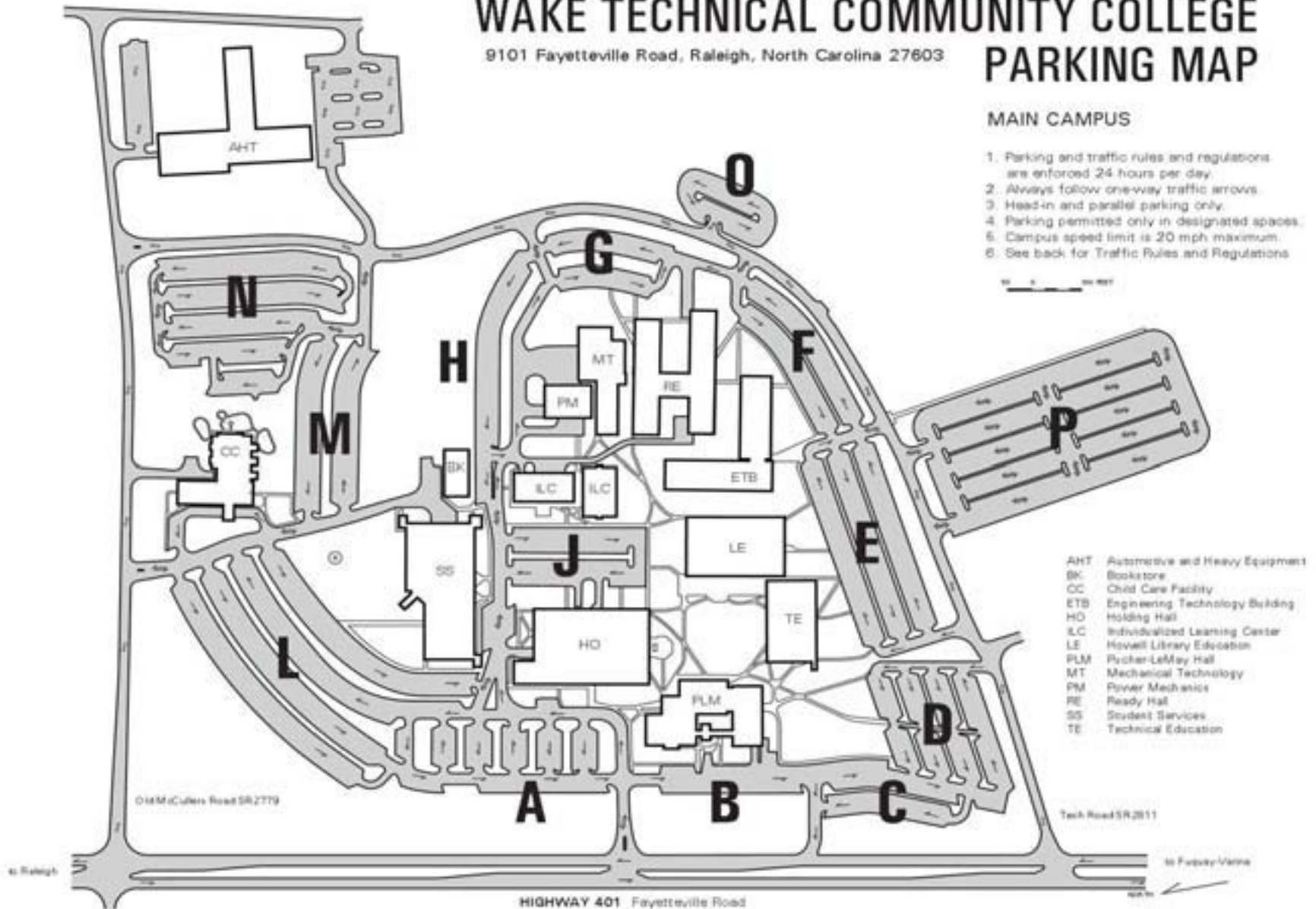
WAKE TECHNICAL COMMUNITY COLLEGE PARKING MAP

9101 Fayetteville Road, Raleigh, North Carolina 27603

MAIN CAMPUS

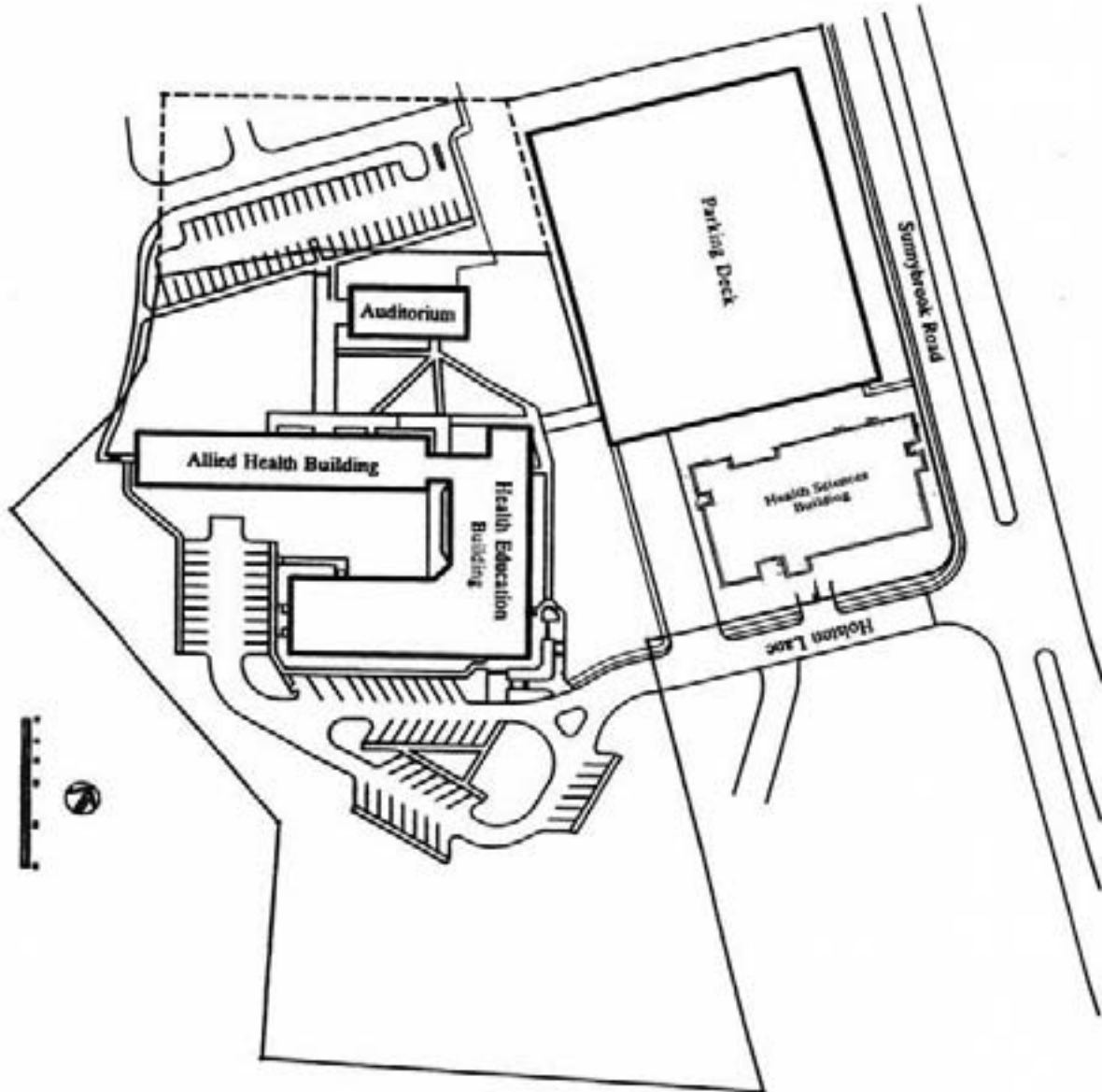
1. Parking and traffic rules and regulations are enforced 24 hours per day.
2. Always follow one-way traffic arrows.
3. Head-in and parallel parking only.
4. Parking permitted only in designated spaces.
5. Campus speed limit is 20 mph maximum.
6. See back for Traffic Rules and Regulations.

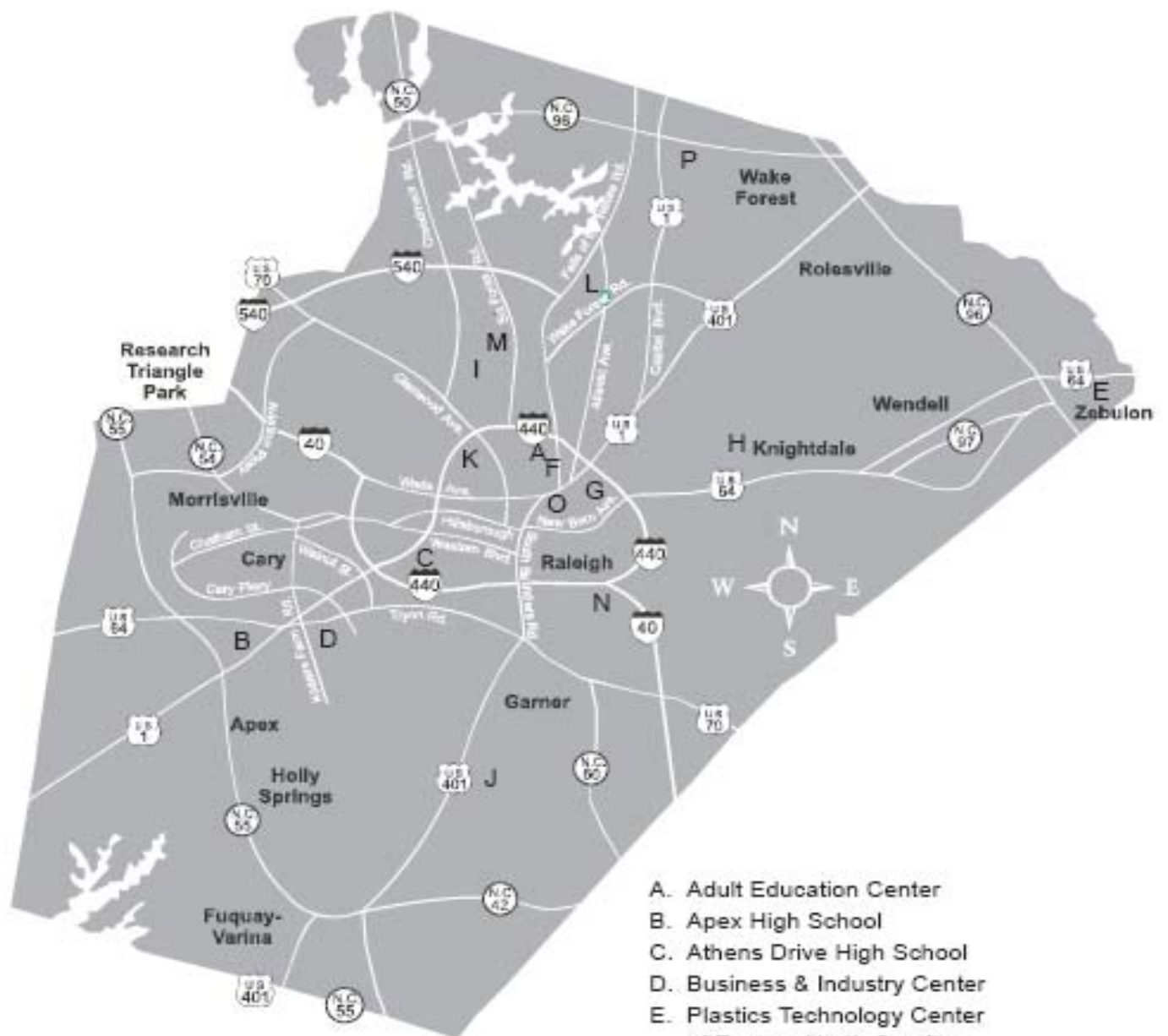
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Wake Technical Community College

Health Sciences Campus Plan Raleigh, NC





Wake Technical Community College

Credit Course Locations

- A. Adult Education Center
- B. Apex High School
- C. Athens Drive High School
- D. Business & Industry Center
- E. Plastics Technology Center of Eastern North Carolina
- F. Enloe High School
- G. Health Sciences Campus
- H. Knightdale High School
- I. Leesville Road High School
- J. Main Campus
- K. Martin Middle School
- L. Millbrook High School
- M. Sanderson High School
- N. Southeast Raleigh High School
- O. State Personnel Development Center
- P. Wake Forest-Rolesville High School

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COLLEGE CATALOG UPDATE LOG

2007 Update #	Date	Catalog Version	pdf Page #	Subject of Change	Requested by	Date Completed
2007-001	2/21/2007	2006-2007		Counseling URL change request	Liz Winfrey	2/21/2007
2007-002	6/8/2007	2006-2007	31,32,37	French & Spanish Speakers	VP Ireland/G. Greene	7/19/2007
2007-003	6/15/2007	2006-2007	36	Testing Center URL & New Phone #	VP Ireland	7/19/2007
2007-004	7/10/2007	2007-2008	38	Tuition Rate Increase Notice	Registrar Jerman	7/19/2007
2007-005	7/10/2007	2007-2008	130-240	Updated Course Descriptions	Registrar Jerman	7/19/2007
2007-006	7/10/2007	2006-2007	3-4	Phone # Updates	R. Fuller	7/19/2007
2007-007	7/10/2007	2007-2008	16-17	2007 Critical Success Factors	J. Boone	7/19/2007
2007-008	7/10/2007	2006-2007	10	Board & Administration Updates	Clevenger/Jones	7/19/2007
2007-013	7/19/2007	2006-2007	ALL	New VOIP Phone Updates	R. Fuller	7/23/2007
2007-009	7/10/2007	2007-2008	31,32,37	French & Spanish Speakers	VP Ireland/G. Greene	
2007-010	6/15/2007	2007-2008	36	Testing Center URL & New Phone #	VP Ireland	
2007-011	7/10/2007	2007-2008	3-4	Phone # Updates	R. Fuller	
2007-012	7/10/2007	2007-2008	10	Board & Administration Updates	Clevenger/Jones	
2007-014	7/19/2007	2007-2008	ALL	New VOIP Phone Updates	R. Fuller	
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2007-017						
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