

2010 - 2011 Bates Technical College

Course Catalog

2010 - 2011 Bates Technical College Course Catalog



Bates
TECHNICAL COLLEGE

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DIRECTORY OF SERVICES

GENERAL INFORMATION

Downtown Campus	253.680.7000
Mohler Campus	253.680.7700
South Campus	253.680.7400
Toll Free In-State	800.562.7099
Academics	253.680.7260
Admissions	
Career Education, Downtown Campus	253.680.7002
Career Education, South Campus	253.680.7410
Adult Basic Education/GED	253.680.7274
Adult Completion	253.680.7274
Advising	253.680.7002
Apprenticeship Training	253.680.7300/7402
Assessment/Testing Center	253.680.7030
Business & Management Training Center	253.680.7186
Career Education	253.680.7000
Child Care Center, DT Campus	253.680.7228
Closure/Weather Information Line	253.680.7060
Communications & Marketing	253.680.7106
Continuing Education	253.680.7300/7402
Dental Clinic, Downtown Campus	253.680.7310
Denturist Clinic, Downtown Campus	253.680.7314
Disability Support Services	253.680.7012
Dislocated Workers	253.680.7299
Displaced Homemakers	253.680.7299
Distance Learning	253.680.7161
Diversity Center	253.680.7178
ECEAP	253.680.7320
English as a Second Language (ESL)	253.680.7558
Extended Learning	253.680.7300, 253.680.7402
Financial Aid	253.680.7020
Foundation	253.680.7160
Hearing Clinic, Downtown Campus	253.680.7362
High School	253.680.7004
Home & Family Life	253.680.7500
Human Resources	253.680.7181
Job Readiness Training Center	253.680.7290
Job Service Center	253.680.7240
KBTC Public Television	253.680.7700
Library	253.680.7220/7550
Paraeducator Training	253.680.7161
Registration	253.680.7000
Running Start	253.680.7004
Student Services	253.680.7002
Teacher Certification Training	253.680.7161
TDD	253.680.7045
Tutoring Center	253.680.7208
Veterans' Benefits	253.680.7529, 253.680.7035
Worker Retraining	253.680.7299
WorkFirst	253.680.7286

BATES TECHNICAL COLLEGE

GENERAL INFORMATION

Academics	academic@bates.ctc.edu
Admissions	info@bates.ctc.edu
Adult Education/GED	adult-ed@bates.ctc.edu
Advising	info@bates.ctc.edu
Apprenticeship Training	apprentice@bates.ctc.edu
Assessment/Testing Center	testing@bates.ctc.edu
Business & Management Training	bmctc@bates.ctc.edu
Career Education	info@bates.ctc.edu
Childcare Center	childcare@bates.ctc.edu
Communications & Marketing	communications@bates.ctc.edu
Continuing Education	cont-ed@bates.ctc.edu
Disability Support Services	dss@bates.ctc.edu
Dislocated Workers	retraining@bates.ctc.edu
Displaced Homemakers	retraining@bates.ctc.edu
Diversity Center	diversity@bates.ctc.edu
ECEAP	eceap@bates.ctc.edu
English as a Second Language	adult-ed@bates.ctc.edu
Financial Aid	financial-aid@bates.ctc.edu
Foundation	foundation@bates.ctc.edu
General Education	academic@bates.ctc.edu
Home & Family Life	family@bates.ctc.edu
Human Resources	hr@bates.ctc.edu
Job Readiness Training Center	jrtc@bates.ctc.edu
Job Services	jobservices@bates.ctc.edu
KBTC Public Television	kbtc@bates.ctc.edu
Library	library@bates.ctc.edu
Paraeducator	paraeducator@bates.ctc.edu
President's Office	president@bates.ctc.edu
Registration for Career Education	registration@bates.ctc.edu
Running Start	running-start@bates.ctc.edu
Teacher Certification	teachertrain@bates.ctc.edu
Technical High School	highschool@bates.ctc.edu
Tutoring Center	tutors@bates.ctc.edu
Veterans' Benefits	vabenefits@bates.ctc.edu
WorkFirst	jrtc@bates.ctc.edu
Worker Retraining	retraining@bates.ctc.edu

1 CHAPTER

About Our College

About Bates Technical College

History of Bates Technical College

Vocational training began in Tacoma on Sept. 4, 1940 in the basement of Hawthorne Elementary School. During the 1941-42 school year, the program became known as the Tacoma Vocational School.

In 1944 the Tacoma School District hired L. H. (LaVerne Hazen) Bates as the school's director. The school's name was changed to the Tacoma Vocational-Technical Institute in 1947.

Verne Bates retired from the director's position in 1969. The Tacoma School Board changed the Institute's name to the L. H. Bates Vocational Technical Institute in honor of Mr. Bates' service and dedication to the Institute and vocational education.

In 1991, state legislation separated the state's vocational technical institutes from local school districts and merged them under the State Board for Community and Technical Colleges.

Today, Bates Technical College annually serves approximately 3,000 career training students and 10,000 more community members in programs such as Continuing Education, Home & Family Life, High School, Business & Management Training Center, and others. The college is governed by a five-member board of trustees appointed by the governor.

Advisory Committees

Some 500 individuals serve on more than 40 program advisory committees.

These committee members represent partnerships with business, labor, and industry; provide curriculum recommendations to the college; and often offer program equipment, scholarships, and job opportunities for students.

The General Advisory Council advises college administration on career education programs as well as other instruction and services.

Bates Technical College Foundation

Community volunteers serve on the Board of Directors of the Bates Technical College Foundation. Our mission is to attract and provide resources through community partnerships to serve the college and its students. Through this nonprofit organization, local businesses, community members and Bates employees contribute to the foundation, providing scholarships, grants, faculty development opportunities, program support and student assistance throughout the year.

Competency-Based Instruction

Unique classroom settings mirror the workplace, providing students with opportunities to practice and develop skills to levels required for successful employment. Students in specific programs gain hands-on experience in campus facilities that include:

- Dental and dentist clinics
- An auto body and fender shop
- A child care center
- Two full-service cafeterias
- An auto service facility and vehicle parts/accessories store
- A 10-chair barber shop
- A beauty salon
- A hearing clinic
- Fully-operational machine, sheet metal and cabinet shops

Diverse Population

Bates' students and staff are from diverse backgrounds, races, religions, and points of view. Students in a class might range from 16 to 60, from high school students just embarking on their educational/career tracks, to people returning to school for a career change or to update job skills.

DEGREE AND CERTIFICATE PROGRAMS

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Accounting/Bookkeeping • Administrative Medical Assistant • Administrative Office Assistant • Architectural Engineering • Architectural Woodworking/Cabinet Making Technology • Audio/Sound Technology • Auto Body Rebuilding & Refinishing • Automotive Mechanic • Barber • Biomedical Service Technician: Clinical Engineering • Biotechnology Lab Technician • Boat Building • Broadcasting & Video Production • Carpentry • Civil Engineering Technology • Commercial Truck Driving-Entry Level • Computer Networking Systems Technician • Computer Repair & Network Support • Cosmetology | <ul style="list-style-type: none"> • Culinary Arts • Database Technology • Dental Assisting • Dental Lab Technician • Denturist • Diesel & Heavy Equipment Mechanic • Digital Media • Early Childhood Education/Child Care • Electrical Construction • Electrical Engineering Technician • Electrical Power & Process Automation/Electronics Technician • Electronic Equipment Service Technology • Electronics Engineering Technician • Electronics Technician • Facilities Maintenance Engineer • Fashion Construction & Design • Fire Protection Engineering Technology • Fire Service • Hearing Instrument Technology | <ul style="list-style-type: none"> • Heating, Ventilation, Air Conditioning, & Refrigeration Technician • HTI: Home Technology Integration • Information Technologies Specialist • Land Survey • Legal Office Assistant • Machinist • Manufacturing: Electronics: IBEST • Manufacturing: CNC Machining & Engineering • Marketing & Business Management • Mechanical Engineering • Occupational Therapy Assistant • Power Sports & Equipment Technology • Practical Nurse • Sheet Metal Technology • Software Development • Vehicle Parts/Accessories Marketing • Web Development • Welding • Wireless Voice & Data Communications |
|--|--|--|

Frequently Asked Questions

When can I start?

Students may enroll in courses during the first 10 instructional days of each quarter. If a program is full, a student may be placed on a waitlist after paying a non-refundable application fee. Some programs have prerequisites that must be met prior to entry.

Can I get help in choosing a career and program of study?

Our career specialists understand the importance of your career decision and will work with you to help match your strengths, interests, and abilities with appropriate educational choices. You may start your decision-making process by taking a self-inventory of what's important to you. Bates' assessment center offers Career Explorer, College-Level Examination Program (CLEP), COMPASS, ESL COMPASS, GED, and various aptitude tests. Testing services are available to students and the general public.

If you have questions or are uncertain about which program to choose, select an area of interest and attend a **Career Education Information Session**. More information: 253.680.7002 or www.bates.ctc.edu/informationssessions.

What's the difference between an application form and a registration form?

Application forms are used for admission to Bates Technical College. You must have an application on file in order to register for classes. Registration forms are used to register for specific courses.

Will I receive personal attention from instructors?

At Bates, students are with their program instructor from six to eight hours a day. Class sizes are limited to optimize individual attention.

Is Bates accredited?

Bates Technical College is accredited by the Northwest Commission on Colleges and Universities, an institutional accrediting body recognized by the Council for Higher Education Accreditation and the Secretary of the U.S. Department of Education.

Does Bates accept transcripts from other institutions?

Yes. Transcripts must be sent in a sealed envelope to the attention of the credentials evaluator in the registrar's office. Electronic transcripts will also be accepted.

Is financial aid available?

Students are encouraged to contact our financial aid office for assistance, 253.680.7020, in determining financial aid eligibility. Students and their families need not be low-income to qualify for some kinds of financial aid. We determine eligibility by comparing the difference between the cost of attending school and what you and your family can afford to pay.

To learn more about the process, pick up a free information packet in the financial aid and student services offices. You must be registered in a degree or certificate program to receive federal financial aid. **It is recommended that students apply for financial aid as early as possible.** Pre-qualification may take up to eight weeks after the application has been mailed. [See page 7.]

TO REGISTER FOR A CAREER EDUCATION PROGRAM

- 1. Complete the COMPASS placement test.** All students registering in career education programs must take the COMPASS assessment, which measures reading, writing, and math skills, for appropriate placement in general education, developmental, and basic skills classes. The testing fee is payable at time of testing.
- 2. Schedule an appointment with a career specialist** for assistance in making program choices, general education requirements, degree and certificate requirements, program costs, support services, and college policies and procedures.

Bring your COMPASS test results with you. At this time the career specialist will discuss your start date, and you will pay a non-refundable application fee.

Note: For returning students, all college financial obligations (e.g., library fines, high school deposits, tuition) must be satisfied prior to registration. Students with unpaid debts to the college will not be allowed to re-register until debts are paid.

- 3. Complete an application form** Forms are available in student services, or call 253.680.7002, 1.800.562.7099 in-state toll free.
- 4. Pay tuition and fees** A career specialist will notify you of your start date. Tuition and fees are payable by cash, check, credit card or financial aid/ agency funding on or before the start of your program.
- 5. Begin your career education program**
- 6. Attend a New Student Orientation** New students are required to attend an orientation **and** receive a Student Handbook. Check with student services for dates and times of orientations.

More information: 253.680.7002
www.bates.ctc.edu



Registration & Attendance Policies

Full-time Students

Full-time students attend classes from six to eight hours each school day, depending on the program. The academic year is 11 months, with four, 10-week quarters: fall, winter, spring and summer. Students are expected to attend class during all four quarters of the academic year.

Most classes are held from approximately 8:15 a.m. to 3 p.m., Monday through Friday. Students may register any day the college is open, pay a non-refundable application fee, and begin classes at the next available entry point. If a program is full, a student may be placed on a waitlist after the application fee has been paid.

Health & Medical Students

Students applying for entrance into the dental assisting, dental lab technician, denturist and practical nursing programs are required to submit a high school transcript and official transcripts of any college-level credit to the registrar's office. Some of these programs have specific start dates. Contact your career specialist for more information.

Students with Special Needs/Disabilities

Qualified individuals with disabilities interested in furthering their education are encouraged to use the services of Bates' Disability Support Services (DSS). Students requesting special accommodation(s) should contact DSS.

More information:

253.680.7013, TTY, 253.680.7045,
e-mail: dss@bates.ctc.edu.
(See page 24.)

Enrollment/Registration Policy

Students must enroll by the tenth day of each quarter. Persons over 16 may register subject to the conditions of Bates' enrollment/registration policy.

If you are undecided about your program of study, consider attending a Career Education Information Session or contact one of our career specialists. More information: 253.680.7002, www.bates.ctc.edu/informationssessions.

Admissions Testing

All students registering in a career education program are required to take the COMPASS test. Contact the Assessment/Testing Center at 253.680.7030.

COMPASS/ASSET scores determine placement in 100-level general education courses and in developmental and basic skills classes in mathematics, reading, and writing. Comparable ASSET scores may be used in lieu of COMPASS scores.

Students registering in general education courses, English, human relations and mathematics, must have the prerequisite COMPASS scores in reading, writing, pre-algebra, algebra or college algebra test levels. Students scoring below those levels are required to register in developmental or basic studies classes to prepare for 100-level courses.

Attendance Policy

The college retains the right to fill a vacant seat during the first 10 days from the beginning of each quarter. Consequently, if a student fails to attend class during the first three days of the quarter, the faculty member may withdraw that student in order to allow another student to enroll.

Bates has a goal of 100 percent attendance, the standard for employees in industry, and students are expected to attend class each time it meets. Individual faculty members will state class attendance expectations in the course syllabi. Because unusual circumstances do occur, a leave of absence will be allowed at the instructor's discretion for illness (personal, dependent, spouse), accident, bereavement, pregnancy, military duty, jury duty.

Leave of Absence

An approved leave of absence is counted as an absence. To qualify for leave of absence, a student must present the instructor appropriate documentation of need, prior to the absence, if possible. Students who return from an approved leave and have lost their place will be re-registered for the next available opening.

Withdrawals

Students may initiate withdrawal proceedings in the registration office.

School Delays & Closures

In the case of severe weather conditions or college emergencies, information regarding the status of Bates' operations can be found on the college website, www.bates.ctc.edu/Weather, or by phoning the weather and schedule information line, 253.680.7060. College closure information also will be available on major Puget Sound radio and television stations through the Public Emergency Communications System and on their website, www.schoolreport.org.

If classes are cancelled, students and faculty do NOT report to the college. If classes are on a delayed schedule, by 5:30 a.m. on the affected day, the college will announce a specific start time for students to report.

International Student Information

International Students

Bates Technical College is dedicated to promoting international education and training within the college, the community, and around the world. Faculty and staff are eager to assist students throughout their educational experience. Bates offers international students superior academic opportunities, unique cultural experiences, and a friendly campus environment.

International Student Resources/ Services

- Airport pickup
- Registration assistance, advising
- International student orientation
- Access to computer resource labs
- Access to Bates' Diversity Center

International students planning to register must:

- Demonstrate English language ability equivalent to Band Four of the IELTS or 400 on the paper TOEFL (133 computer).
- Show sufficient financial resources to pay college and living expenses for one year.

Admission Application

Obtain an admission application online at www.bates.ctc.edu/international and click on International Student, or via e-mail: Internationalstudent@bates.ctc.edu.

Bates Technical College issues F-1 and M-1 Certificates of Eligibility and I-20 forms required for the issuance of an F-1 Visa. Please take the I-20 form to the U. S. Consulate in your country to apply for a student visa.

Mail completed the admission application and forms to:

International Advisor
International Student Services
Bates Technical College
1101 South Yakima Avenue
Tacoma, WA 98405-4895, USA

When Bates Technical College receives the required admission application and forms, the college will determine your eligibility for enrollment at Bates.

More information: 253.680.7007, e-mail internationalstudent@bates.ctc.edu or visit www.bates.ctc.edu/international.

Tuition and Expenses for International Students

The cost to attend Bates Technical College, including books, supplies, tuition, and living expenses is approximately \$2,000 (US) per month. This does not include the cost of travel to or from the United States. The college provides limited scholarships for which international students can apply. For a schedule of international tuition and fees, www.bates.ctc.edu/international.

Financial Responsibility

International student applicants supported by personal funds must return the *Financial Resources Information* document to the college with the appropriate signatures. Applicants supported by family, government, or agency funds must obtain the signature of the party providing support on the Sponsor's Statement of Support document.

International Contract Training

Bates Technical College provides international and distance learning contract training for industry-specific training and/or for international educational partners. More information: 253.680.7030, www.bates.ctc.edu/international.

Transcripts, Transfer of Credits

Transcripts

Official transcripts for courses completed at Bates Technical College are available through the registrar's office at \$5 per copy.

A transcript request form may be obtained by mail or online at www.bates.ctc.edu/MyBates. Transcript requests must be submitted in writing and signed by the student. Telephone requests are not accepted, and transcripts will not be released without the student's signature.

A transcript may be requested via written request containing the student's name at the time of attendance, social security number, and dates of attendance. Transcripts are released provided that all outstanding financial obligations to the college have been satisfied.

Students may request unofficial transcripts from the registrar's office. Unofficial transcripts marked as such reflect "in-progress" ratings but do not carry the college seal. These unofficial transcripts can also be printed from the college website at www.bates.ctc.edu/MyBates.

High school transcripts may be requested from Bates' Technical High School office. More information: 253.680.7004.

Transfer of Credits

Credits, qualifications, or requirements waived by one college may not necessarily be waived by another college. Those decisions are made at each institution. Upon student application, each college evaluates and, if appropriate, transfers recognized or accepted competencies or credits which apply to the area of study for which the student has applied. The enrolling college determines transfer of competencies or credits earned elsewhere. When applicable, students may be accepted for advanced placement or waiver of course requirements with demonstration of competency.

Students may request that prior credits be transferred to satisfy general education requirements. Students must complete a Request for Evaluation in the registrar's office.

Students must specifically request official transcripts be forwarded directly to the registrar's office from accredited post-secondary institutions or military service.

Courses will be evaluated to meet general education requirements in communications, human relations, social science, humanities and mathematics. The accepted transfer courses and credits will be reported on the transcript, which students may view through the student kiosk on Bates website www.bates.ctc.edu/MyBates.

College-Level Examination Program

The College-Level Examination Program (CLEP) is the most widely accepted credit-by-examination program in the country. Through CLEP, students can:

- Demonstrate their knowledge in a subject area to earn exemption from taking introductory college courses;
- Show their level of competency in a subject to determine placement; and
- Accumulate credit toward a degree by demonstrating knowledge they have gained independently.

There are no eligibility requirements or prerequisites to take a CLEP exam. More information: 253.680.7030.

Transferability of Credits

To determine transferability of credits earned at Bates Technical College to other institutions, students may request an official Bates transcript be forwarded to the college by which they wish to have credits evaluated. The receiving college determines the transferability of courses completed at Bates. Contact the registrar at the college to which you wish to send transcripts for evaluation.

Transferability of General Education Credits

The transferability of general education credits earned at Bates Technical College is subject to the policies of the receiving institution. General education courses are required in career education programs and are necessary to pursue higher-level degrees.

Successful scores on appropriate College-Level Examination Program (CLEP) examinations may be used to meet general education requirements for a degree or certificate.

Work-Based Learning

In collaboration with the instructor, student, and employer, students may, with appropriate approval, supplement their instruction with paid and unpaid work-based learning experiences in businesses throughout the Puget Sound area.

Veterans Administration and other program-funded students may participate in work-based learning experiences only if it is completed in-residence at the college, with permission of the funding agency. More information: 253.680.7529 or 680.7035.

Financial Aid

Financial Aid

Financial aid is available for eligible students. Students and their families need not be low-income to qualify for some kinds of financial aid. Students must demonstrate financial need to be eligible for federal assistance.

Even if receiving financial assistance from agency sources (L&I, VA, DVR, WorkSource, WorkFirst), students may be eligible for additional grant aid from state and federal financial aid sources to attend school.

We determine eligibility by comparing the difference between the cost of attending school and what you and your family can afford to pay.

Students are encouraged to apply for financial aid as early as possible since pre-qualification may take up to eight weeks from the application submission date. Electronic Financial Aid award notifications begins in July.

Financial aid is intended to supplement, not replace, a person's resources. If combined resources are not sufficient to cover expenses, you may be eligible for financial aid in the form of grants, scholarships, low-interest loans, or work study employment. (See page 8.)

Information submitted on the financial aid form determines eligibility for grants, scholarships, work study, and low-interest loans. Students should plan to use personal resources to buy books and supplies prior to their first financial aid disbursement.

Eligibility for Financial Aid

A student is eligible for financial aid if they are:

- Attending Bates to obtain a degree or certificate
- A U.S. citizen or eligible non-citizen
- Making satisfactory progress in a program of study, as defined by the institution's satisfactory progress criteria
- Not in default on any previous student loans or owe a refund on any grant
- Registered for the draft with Selective Service if required by law
- A high school graduate, a GED completer, or earn passing scores on the COMPASS exam

Students entering Bates with a bachelor's degree are limited to applying for loans, scholarships, and work study assistance. (See page 8.)

Satisfactory Progress for Clock Hour Students

Any student receiving financial aid, based on clock hours, must be at 91 percent of their registered clock hours and making satisfactory progress (GPA of 2.0) in their program to receive a disbursement. All absences are used to compute attendance for financial aid disbursements. See Financial Aid Satisfactory Progress Procedure at www.bates.ctc.edu/financialaid.

Students on probation who receive financial aid are eligible for funding during the first and second quarter of probation. Students remaining on probation into a third quarter are ineligible for continued financial aid funding.

Satisfactory Progress for Credit Students

Any student receiving financial aid, based on credits, must maintain a quarterly grade point average (G.P.A.) of 2.0 or "C" or higher as well as maintain the minimum required credits to receive a disbursement. See Financial Aid Satisfactory Progress Procedure at www.bates.ctc.edu/financialaid.

Students on probation who receive financial aid are eligible for funding during the first and second quarter of probation. Students remaining on probation into a third quarter are ineligible for continued financial aid funding.

Withdrawals

Please see attendance policy on page 4. A student may initiate withdrawal proceedings in the registrar's office or with an instructor.

Return of Title IV Financial Aid

Students who are awarded Title IV Aid and withdraw from courses are subject to the Return of Title IV regulations. The regulations require the college to evaluate the time the student was enrolled, using the Return of Title IV calculation.

The United States Department of Education governs Title IV calculations, which differ for students who are transitioning from clock hours and students who enrolled at Bates, initially, under the credit system, which began summer quarter 2010.

Please refer to the student handbook at www.bates.ctc.edu/MyBates for a full description of Return of Title Four Funds and/or inquire at the Financial Aid Office.

Students who are in Return of Title IV status will receive an overpayment letter and will be ineligible for further Title IV and state aid, until the funds are repaid. The calculation is based on the last recorded day of attendance for the student. (Sample calculations are available upon request in the Financial Aid office).

To apply for Financial Aid

1. Complete and submit the Free Application For Student Aid (FAFSA) as soon as possible. Get forms in the financial aid and student services offices and online at www.bates.ctc.edu/financialaid or www.fafsa.ed.gov.
2. Complete a Financial Aid Data Sheet and return it to the financial aid office.
3. Stay in touch with the financial aid office to ensure that they have the correct information to complete your file.
4. Remember that you must reapply for financial aid each year. Electronic notification of financial aid awards begins in July each year.

Grants, Loans & Scholarships

Our Financial Aid Office can answer your questions about grants, loans and employment programs that can help students pay for their education. More information: 253.680.7020 or www.bates.ctc.edu/financialaid.

Grants

Federal Pell Grant*	\$1,176 to \$5,500/year	For undergraduate students (federal)
Federal Supplemental*	\$100 to \$300/year	For undergraduate students (federal)
WA State Need Grant*	Up to \$2,682 + \$840 daycare allowance	For undergraduate students (state)
3.5 Percent Fund*	Amount varies	For full- and part-time students (institutional)

*Grant amounts and the availability of funds are subject to change

Loan Programs

Bates participates in the William D. Ford Direct Loan program. For more information, go to www.bates.ctc.edu/financialaid.

Federal	Maximum 1 st year: \$3,500 Maximum 2 nd year: \$4,500 Amount varies	Subsidized: Deferred repayment and fixed interest rates Subsidized: Deferred repayment and fixed interest rates Unsubsidized: Deferred repayment and fixed interest rates
Federal Plus Loan	Maximum loan can cover cost of education; a non-need based program for parents of undergraduate dependent students with immediate repayment fixed interest rates	

Employment Programs

Federal and State Work Study	\$500 to \$5,000/year	On- and off-campus employment opportunities
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SCHOLARSHIPS

Scholarship offerings vary from quarter to quarter, and the **Bates Technical College Foundation encourages new and current students to apply for scholarships every quarter**. Individual awards range from \$100 to \$1,000 per quarter. Applications are available online at www.bates.ctc.edu/foundation, and in Student Services, Financial Aid, and the Foundation Office at the downtown campus. To request an application by e-mail, send to foundation@bates.ctc.edu.

1. Who is eligible to apply for scholarships through the Bates Technical College Foundation?

All Bates students registered in degree and certificate programs are eligible to apply for scholarships. Some scholarships are open to all students in any program, while others are limited to specific programs. Please read each scholarship announcement to determine eligibility.

2. Can I still apply for a scholarship even if I receive financial aid?

Yes. Students are encouraged to apply for scholarships even if they are receiving financial aid. However, funds received as a scholarship are deducted from a student's financial aid budget.

3. I already have a degree, but am returning to school. May I still apply for a scholarship?

Yes, previous educational experience does not disqualify a student from applying for scholarships through the Foundation.

4. Can I apply for a scholarship even if I received one in a previous quarter?

Yes. Students are encouraged to apply for scholarships each quarter.

5. I already receive funding for tuition. Why should I apply for a scholarship?

Some scholarships provide funding for tuition as well as books and supplies. If both tuition and supplies are being paid for by an outside agency, students are not eligible to apply for scholarships. However, if only tuition is being paid for, students may apply for scholarships that help pay for books and supplies.

6. How do I use my scholarship for books and supplies?

If a scholarship provides for books and supplies, students have two options:

- 1) An account can be established at the Bates book stores to charge books and supplies. All receipts are to be submitted to the Foundation Office, M332, downtown campus.
- 2) To purchase books and supplies elsewhere, Foundation approval is required before purchases can be made. Students are to submit receipts with their signature and documentation signed by their instructor verifying the books and supplies are relevant to the training. The Bates Foundation then reimburses by check.

Grading System

Grading Procedures

The following grading practices support academic freedom and provide a uniform and fair grading system for students and faculty.

1. Instructors are empowered to select criteria used to grade the courses they teach, and how those criteria will be weighted. Elements that contribute to grades can be as broad as needed and may include various methods of measuring student learning and achievement. For example: a possible combination of test scores, assignments, evaluation of lab/shop work, attendance, workplace behaviors evaluation, and other elements may be used.
2. At the beginning of each course students will be provided with a syllabus detailing what will be learned in the course and how outcomes will be measured and graded. Grading information will explain how the various factors will be weighted and how they contribute to the final grade.
3. Reporting:
 - Numerical grades earned by students will be reported for each course at the end of the quarter using a scale from 4.0 to 0.7, or 0.0, and will apply to grade point average (GPA) calculations.
 - Numerical grades of 0.0 will be indicated as "no credit" (NC), and will also factor into GPA calculations.
 - Numerical grades may be considered equivalent to letter grades as follows:

Numerical Grades	Letter
4.0	A
3.9-3.7	A-
3.6-3.3	B+
3.2-3.0	B
2.9-2.7	B-
2.6-2.3	C+
2.2-2.0	C
1.9-1.7	C-
1.6-1.3	D+
1.2-1.0	D
0.9-0.7	D-
0.0	N/C

N/C-No Credit: counted in GPA
S: Satisfactory completion of a pass/fail Course (not factored in GPA)
U: Unsatisfactory completion of a pass/fail course(not factored in GPA)
W: Withdrawal - not counted in GPA
IC:Incomplete

4. Withdrawals (W): Students will be allowed to self-withdraw from courses in accordance with college procedures.
5. Incomplete marks (IC)
 - a. An incomplete (IC) may be granted for a course in which the student enrolled but did not complete all work required to earn a letter grade due to unusual or emergency circumstances beyond the student's control.
 - b. An IC is not a student right, but is an instructor granted extension of the time needed to finish and submit required work the student was unable to complete during the regular course timeframe.
 - c. The student need not re-register nor pay additional tuition in the following quarter for the individual course in which an IC is granted.
 - d. An instructor may give an IC to a student provided there is a contract in place between the student and the instructor specifying:
 - what work must be completed
 - by what date the work will be completed
 - what the final grade for the course will be if the student does not complete all required work by the required date
 - e. If the student fails to complete the required work by the deadline set by the instructor (in no case beyond the end of the subsequent quarter), the IC will automatically change to the grade designated on the contract.

A student who is suspended from Bates Technical College will not be permitted to enroll for any credit courses for three consecutive quarters, from the end of the quarter for which the suspension occurred. A student who returns after suspension will automatically be placed on first quarter probation status.

A suspended student who fails to maintain the required academic standards due to special or extraordinary circumstances may petition the Academic Standards Committee for conditional reinstatement. Petition forms are available in the office of the vice president for student services.

Program Curriculum

The program descriptions in this catalog are provided for reference and list all curricula that exist for individual programs. Selection of specific elective classes will depend on the area(s) of program emphasis a student wishes to pursue; therefore, students will not need to complete every class segment that is listed in the catalog. Students should consult with their advisors and faculty to determine the most appropriate and/or required classes for their desired program path and completion credential.

Program Completion Times

Completion time ranges listed for each career education program in this catalog are averages based on the schedule of when courses will be offered and the number of credits needed to complete the required curriculum for that program. Program completion rates may vary from those listed based on individual student skills, aptitudes, and academic progress.

Academic Standards Procedure

Bates' Academic Standards Procedure applies to all Bates students enrolled in credit courses. Standards were established to maintain academic excellence and to encourage students to assume responsibility for their own academic progress. Academic standards procedures also ensure that students with educational difficulties are informed of the many resources available at Bates.

A student enrolled in graded courses at Bates Technical College will be placed on academic probation when the student's cumulative grade point average (GPA) falls below 2.0. Students who remain on probation for three quarters are subject to suspension from academic study at the college for three consecutive quarters. The complete Academic Standards Procedure is available online at www.bates.ctc.edu/etc and in hard copy in the student services offices.

Degrees & Certificates

Degrees & Certificates

In addition to degree and certificate options, Bates has agreements with other institutions to provide options for students to earn a four-year degree.

All degree and certificate options require a minimum cumulative grade point average (GPA) of at least a 2.0 to earn a credential. Individual programs may require a higher grade point average.

Associate of Technology Degree

The Associate of Technology degree prepares graduates for the workforce, leading the graduate directly to employment in a specific occupation. Associate of Technology degree career education programs have general education requirements. Students must complete college-level credits in communications, human relations and social science, and mathematics.

Associate of Applied Science - T

The Associate of Applied Science-T degree provides students of specific career education programs with pathways to further educational opportunities through articulation (transferable) agreements with baccalaureate institutions. Completion requirements generally include no less than 20 general education credits for courses generally accepted in transfer, and comprised of five credits of English composition, five credits of college-level mathematics, and 10 credits in social science, humanities or science.

Associate of Technology in Apprenticeship Studies

Former students may be eligible if requirements are met, and if they have spent at least two of the least three years employed within the technical specialty (such as supervisor, foreman, manager, inspector, or instructor.) Completion requirements for this degree include:

- Completion of a Bates Technical College apprenticeship program that is at least three years (6,000 hours) in length.
- Meeting general education requirements at Bates or transferring credits (subject to approval by Bates' registration office).

Certificate of Competency

This completion credential is designed specifically for non-licensed programs at least 45 credits in length. Completion requirements include:

- Completion of the minimum number of pre-college (90- level) and college-level program-specific credits and achieving a competency rating of 3 or higher.
- Meeting general education requirements by completing 90- or 100-level classes as stated in general education requirements—Certificate of Competency by completing a minimum of nine general education credits, three each, in communications, human relations and mathematics.

Certificate of Training

Certificates of Training are awarded to students who successfully complete programs that are less than 45 credits in length.

Articulation Agreements

Bates has articulation agreements with University of Washington Tacoma and The Evergreen State College for AAS-T degrees. For more information, see career training program information or contact a Bates' career advisor.

Articulation with University of Washington Tacoma

Currently three Bates career education programs have an articulation agreement with the University of Washington Tacoma for transfer of credits: Database Management & Development, Software Development and Web Developer. Completion requirements for this degree differ. Students are advised on specific requirements upon their declaration of degree intent and

while attending their specific program. Students are cautioned that the general education requirements of specific program articulation agreements may be more stringent and require more than 20 credits.

Articulation with The Evergreen State College

Currently the Fire Protection Engineering Technology career education program at Bates has an articulation agreement with The Evergreen State College for transfer of credits. Completion requirements for this degree differ. Students are advised on specific requirements upon their declaration of degree intent and while attending this specific program, and are cautioned that the general education requirements of specific program articulation agreements may be more stringent and require more than 20 credits.

Certifications & Professional License Preparation

Certifications for Industry

Bates offers many courses that prepare students for industry-standard certifications as part of a degree program or as a separate professional track. Students are encouraged to obtain as many certifications as possible while completing career education programs. Certifications indicate to prospective employers that a person has successfully shown an understanding of the technical knowledge required in a chosen field. Certifications include:

ARI Industry Competency Exam
(Air Conditioning and Refrigeration Institute)

- Commercial Refrigeration
- Light Commercial Heating and AC
- Residential Heating and AC

ASE (Automotive Service Excellence)

CDA (Certified Dental Assistant)

CMT (Certified Medical Transcriptionist)

CSI (Construction Specifications Institute)

CWTS (Certified Wireless Technology Specialist)

Cisco (Bates Technical College is an official Cisco Network Academy)

CCNA (Certified Network Associate)

CCENT (Cisco Cert Entry Networking Technician)

CompTIA

A+

Net+

Security +

Project +

DHTI Digital Home Technology Integration

EET (Electrical Engineering Technician)

EET (Electronic Engineering Technician)

EPA 608 (DFC Refrigerants)

ETAI (Wireless Network Installer)

FOA (Certified Fiber Optics Technician)

I-CAR (Inter-Industry Conference on Auto Collision Repair)

ICBO (International Conference of Building Officials)

Microsoft Corporation

MCP (Certified Professional)

MCSA (Certified Systems Administrator)

MCSE (Certified Systems Engineer)

MCITP (Certified Information Technology Professional)

MCDST (Certified Desktop Support Technician)

Other

Network Cabling Specialist

MECP (Mobile Electronics Certified Professional)

NICET (National Institute for the Certification of Engineering Technicians)

Oracle

Oracle 10G

Oracle/Og

PL/SQL Developer

OCA (Oracle Certified Associate)

SBE (Society of Broadcast Engineers)

CBT (Certified Broadcast Technology MOVE)

STARS (State Training and Registry System Certification Preparation, Training, and Testing)

Fire Service

Bates Fire Service Training is accredited to National Fire Protection Association (NFPA) standards by the Washington State Patrol, Office of the State Fire Marshall, and the Fire Protection Policy Board through the International Fire Service Accreditation Congress (IFSAC) at the following levels:

Firefighter I

Firefighter II

Fire Apparatus Driver/Operator*

Fire Instructor I

Fire Instructor II

Fire Officer I

Fire Officer II

Fire Officer III*

Fire Safety Officer*

Fire and Life Safety Educator I

Hazardous Materials Awareness

Hazardous Materials Operations

Public Information Officer*

*Pending approval from the Washington State Fire Marshall

Certification Preparation, Training and Testing

Bates is a primary trainer and provider of certification testing in several professions, including:

Boiler Testing and Certification Class I, II, III Operating Engineer Class IV Fireman, Operator Class V Boiler Fireman

CDL Truck Driver testing, certification

Engine and Equipment Training Center

High school career and technical teacher preparation

Post-secondary professional-technical certifications

WABO (Washington Association of Building Officials)

AWS (American Welding Society)

Professional License Preparation

Students are encouraged to prepare and apply for the appropriate license for their profession prior to program completion.

Federal Communications Commission

General Radiotelephone Operator License

Radar Endorsement

GMDSS (Maritime Duties and Disaster System)

State of Washington

Barber

Class A Communications

Cosmetologist

Denturist

Hearing Aid Fitter/Dispenser

Licensed Practical Nurse

National Board for Certification in Dental Technology

RG (Recognized Graduate)

CDT (Certified Dental Technician)

General Education

General Education Courses

General education (academic) courses are designed to provide competence in a variety of learning areas related to career education and to ensure that all students have a broad, basic education. Areas of study include human relations/leadership, communications, and mathematics.

General education courses are required as part of degree and certificate achievement and are necessary for pursuit of higher-level degrees. It is important for students to plan ahead to take general education courses to ensure that requirements for a degree or certificate are met while completing industry-specific competencies. Career specialists and instructors assist students with planning to meet general education completion requirements.

General Education Requirements

General education requirements for degree and certificate programs at Bates Technical College vary, depending on the program, the credential, and the track a student chooses to pursue.

General education courses include college 100-level or > and pre-college 090-099-level courses. Associate degrees require completion of a specified number and distribution of college-level general education courses.

Most students complete general education requirements at Bates Technical College. **Students must register for general education classes quarterly.** Early registration is recommended.

Some general education courses are available in alternative delivery formats (i.e., online options or video based).

More information:

www.bates.ctc.edu/academics

Students may also complete general education requirements by receiving transfer credits based upon an evaluation of courses taken while in military service or by passing recognized post-secondary equivalency exams such as DANTES, CLEP, or Advanced Placement (AP)/International Baccalaureate (IB) in a relevant subject area.

General Education Grading System

General education courses use a traditional grading system as follows:

Grade	Decimal Grade
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
NC	0.0

Some degree programs require a humanities class. Bates provides distance-learning options to meet this requirement.

Successful scores on appropriate CLEP examinations may be used to meet general education requirements for a degree or certificate at Bates Technical College.

Transferability of General Education Credits To Bates Technical College

Students who have completed general education courses at another college may request transfer of credits to Bates Technical College by providing the registrar's office with an official transcript and requesting a transfer evaluation. The registrar will determine if courses can be applied to a student's credential completion requirements.

Transferability of General Education Credits From Bates To Another College

The transferability of general education credits earned at Bates Technical College is subject to the policies of the receiving institution.

Transferability of General Education Credits for Running Start and Technical High School Students

Students registered in Running Start and Technical High School at Bates may take general education courses. High school students can apply credit for these courses to both their high school graduation requirements and to degree and certificate requirements at Bates Technical College.

High school transcripts can be obtained by contacting the Bates Technical High School, 253.680.7004.

General Education Pathways

General Education Pathways

Courses in English/communications, human relations/social science, and mathematics/computation satisfy degree and certificate requirements. Several courses may satisfy general education requirements; however, students should consider which courses best complement their career education program and seek the advice of their career specialist and instructor. Some programs have specific requirements

in mathematics, communications, and human relations. Some courses are more generally transferable to other institutions. Students with educational goals beyond an associate degree should consider this when selecting courses.

Note: Students register in initial general education courses based on COMPASS scores and move sequentially through the General Education Pathway.

GENERAL EDUCATION COURSES REQUIRED FOR A DEGREE				
General Education Preparation Prerequisite Selected for Program	Computations	Communications	Human Relations	Maximum Number of General Education Courses Required for Degree
Ready for 100-Level	1 Course	1 Course	1 Course	3 (See note 1.)
Ready for 90-Level	Up to 2 Additional Courses MATH 98 and MATH 092 or MATH 096 and MATH 093	1 Additional Course ENGL 091	0 None	3 Additional at 90-level depending on COMPASS scores Total General Education Courses 6 (See note 2.)
Ready for 89-Level	1 Additional Course MATH 087 or MATH 085	Up to 2 Additional Courses READ 089 and/or ENGL 089	0 None	3 Additional at 89-level depending on COMPASS scores Total General Education Courses 9 (See note 3.)

Notes:

1) Some AT and AAS-T degrees require additional 100-level courses. 2) Some students may require only one 90-level MATH course. 3) Some students may require only one 89-level READ/ENGL course.

Common Course Numbering

Common course numbering makes course transfer between and among Washington State's 34 community and technical colleges easier for students, advisors, career specialists, and receiving institutions.

PREVIOUS COURSE #	COMMON COURSE #
ART 107 Introduction to Art	ART& 100 Art Appreciation
ASL 101 Beginning Sign Language	ASL& 121 American Sign Language I
BIO 200 Molecular, Cellular & Developmental Biology	BIOL& 222 Molecular, Cellular & Developmental Biology
MICRO 201&202 General Micro-biology & Gen Microbiology Lab	BIOL& 260 Microbiology
CHEM 111 Introduction to General Chemistry	CHEM& 141 Introduction to Chemistry
HREL 151 Introduction to Human Relations	CMST& 210 Interpersonal Communications
SPCH 101 Introduction to Speech	CMST& 220 Public Speaking
HREL 103 Human Relations: Teams	CMST& 230 Small Group Communications
CPROG 221 Programming in C++ Language I	CS& 131 Computer Science I C++
CPROG 231 Programming in Java I	CS& 231 Computer Science I Java
ENGL 101 College Composition	ENGL& 101 College Composition I
ENGL 201 Technical Writing, Advanced	ENGL& 235 Technical Writing
MATH 105 College Algebra	MATH& 141 Precalculus I
MATH 121 Trigonometry	MATH& 142 Precalculus II
MATH 104 Data Analysis	MATH& 146 Introduction to Statistics
MATH 211 Calculus I	MATH& 151 Calculus I
PSYCH 101 General Psychology	PSYC& 100 General Psychology
SOC 101 Introduction to Sociology	SOC& 101 Introduction to Sociology

Adult Basic Education, Adult High School Completion, ESL/GED

Adult Basic Education (Basic Studies)

Bates offers Adult Basic Education (ABE) classes and services in:

- Mathematics, reading, writing
- Educational planning
- GED preparation
- Adult high school completion
- English as a Second Language

ABE classes are intended to help students improve mathematics, reading, and writing skills whether or not they have a high school diploma.

Students register for basic studies to prepare for further general education courses, to complement career education, to prepare for General Education Development (GED) testing, and for personal growth. Day and evening classes are offered with monthly start dates. More information: 253.680.7274.

Basic Studies Educational Planning

Basic studies educational planning (BSEP) assists students in selecting appropriate basic studies classes.

Students take assessment tests and are then placed in classes appropriate for their skill level and personal educational goals.

Career education students whose COMPASS scores indicate a need for basic studies classes are required to attend a six-hour BSEP assessment course.

Adult High School Completion

Students 18 years of age and older may earn a high school diploma at Bates Technical College by completing high school general education courses, continuing education courses, career education programs, and by receiving credit for work-based and community learning experiences. More information: 253.680.7260

Adult High School Completion Graduation Requirements

1. Complete a written High School and Beyond Plan, outlining how you will meet your high school requirements and spend your first year after graduation. A career specialist will assist you in developing and adjusting your plan as necessary.
2. Earn 19 credits (expressed in Carnegie Units) in core subject areas below:

English	3 credits
Mathematics	2 credits
Science (Including 1 credit of laboratory sciences)	2 credits
Social Studies (Including study of the U.S. and Washington State constitutions)	2.5 credits
Art	1 credit
Occupational Education	1 credit
Health and Fitness	2 credits
Electives	5.5 credits
3. Complete a culminating project. (Instructors will assist in choosing and planning projects within three quarters prior to graduation.)
4. Students who began 9th grade in September 2004 or later must earn a Certificate of Academic Achievement (CAA), by passing the reading, writing, and mathematics High School Proficiency Exam (HSPE) or an approved alternative for each area. Students who began 9th grade in September 2009 must also pass the HSPE science exam, or an approved alternative to earn a CAA.

English as a Second Language (ESL)

Students whose primary language is not English have the opportunity to take classes to improve skills in reading, writing, and listening and then move progressively to greater levels of competence as basic skill levels improve.

ESL classes help students to transition to general education courses and can be taken as a complement to a career education program. ESL students participate in civics programs which assist individuals with access to public services, participation in community activities and use of available information sources within the college and the community. More information: www.bates.ctc.edu/ESL.

GED Test Preparation

Specialized classes assist students in preparing for the five General Education Development (GED) examinations. Day and evening classes are offered. More information: 253.680.7274.

TO REGISTER FOR ADULT BASIC EDUCATION (ABE/ESL/GED)

1. Call 253.680.7274 for the next date of registration.
2. Attend an orientation at either the Downtown Campus or the South Campus:
Downtown Campus, 1101 S Yakima Ave., Room E313
South Campus, 2201 S 78th St., Room E114
3. Complete a Bates application form.
4. Complete a Bates registration form and Basic Studies documentation.
5. Complete the required Basic Studies assessment tests.

Running Start & Technical High School

Running Start

Most of the career education programs at Bates Technical College are state-approved Running Start courses. The Running Start program allows academically qualified high school juniors and seniors to register in career education programs at Bates to earn credit toward a high school diploma and an Associate of Technology degree or a certificate concurrently.

Approved college courses are tuition-free, but fees, supplies, books and other incidental expenses are the student's responsibility.

Running Start students may also complete general education courses required by their high school at Bates. Interested students must obtain permission from their current high school district to register in Running Start at Bates. Contact your high school counselor or call 253.680.7004.

Technical High School

Bates Technical High School is available to students 16-20 years of age who have not yet earned a high school diploma. General Education Development (GED) completers are eligible to enroll in Bates Technical High School.

Students work toward a high school diploma and an associate of technology degree or certificate simultaneously. Individual graduation plans will vary depending on a student's choice of program.

Technical high school students do not pay tuition but may be responsible for other fees, supplies and incidental expenses.

Students may transfer to Bates' Technical High School from their current high school district. More information: 253.680.7004.

Technical High School Graduation Requirements

1. Earn at least 19 credits (for students who began 9th grade in September 2009, the minimum credit requirement rises to 20, with an additional 1.0 credit required in math).

English	3 credits
Mathematics	2-3 credits
Science	2 credits
Social Studies	2.5 credits
Art	1 credit
Occupational Education	1 credit
Health and Fitness	2 credits
Electives	5.5 credits

2. Complete a Culminating project and High School and Beyond Plan. Your high school advisor will assist you in registering for the Bates English 093 class in which the work is done to complete these state graduation requirements.

3. Pass State Tests or State-approved alternative. Students who began 9th grade in September 2004 or later must earn a Certificate of Academic Achievement (CAA), by passing the reading, writing, and mathematics High School Proficiency Exam (HSPE) or an approved alternative for each area. Students who began 9th grade in September 2009 must also pass the HSPE science exam, or an approved alternative to earn a CAA.

Afternoon Technical High School

Beginning in the fall of 2010, afternoon technical high school at Bates' South Campus expanded to offer career training in Diesel, Auto Body, Electrical Construction, Fire Service, Powersports, and Welding; (additional programs are in development).

Afternoon technical high school students take academic classes at South Campus prior to their career-training course, which runs from 3 to 6 p.m. Afternoon high school students who perform well in their career training courses may earn college credit and priority seating for transfer into the full-time career training programs. More information: 253.680.7004 or www.bates.ctc.edu/highschool.

TO REGISTER FOR RUNNING START & TECHNICAL HIGH SCHOOL

1. Attend a running start or technical high school orientation session (see www.bates.ctc.edu/highschool for current orientation schedule).
2. Complete your orientation assignment, complete application packet, take COMPASS placement test, and obtain approval and transcripts from your previous high school.
3. Call the high school office 253.680.7004 to schedule a placement meeting with the high school principal.
4. Once placed, meet with an advisor and complete an education plan.
5. Register, pay fees, and begin your classes.

CHAPTER 2

Specialized Programs

Specialized Programs

Apprenticeship

Bates Technical College has a 65-year history providing Washington State-approved apprenticeship training programs. Pre-apprenticeship career education programs at Bates include:

- Architectural Engineering
- Architectural Woodworking/Cabinet Making Technology
- Carpentry
- Civil Engineering
- Electrical Construction
- Electrical Power & Process Automation
- Electrical & Electronics Engineering
- Facilities Maintenance Engineer
- Fire Protection Engineering Technology
- Heating, Ventilation, Air Conditioning, and Refrigeration Technology
- Land Survey
- Machinist
- Mechanical Engineering
- Sheet Metal Technology
- Welding

Bates offers a degree in Apprenticeship Studies. More information: 253.680.7300 or 680.7402, www.bates.ctc.edu/apprenticeship

Apprenticeship Committees

- Operating Engineers Regional Training JATC, Jim Agnew, Training Director, 800.333.9752
- Pacific NW Iron Workers & Employers Local #86 Apprenticeship Committee Erich Smith, Coordinator, 206.244.2993
- Pierce County Meat Cutters Apprenticeship Committee
- Benny Rolland, Director, 253.589.0367
- Pierce Transit/ATU Local #758 Apprenticeship Committee, Mel Munsterman, Coordinator, 253.581.8051
- Port of Tacoma, Bernice Griffin, Training Coordinator, 253.597.7561
- Skookum Corporation & Directorate of Logistics, Fort Lewis, Washington JATC, Tom Whipple, Coordinator, 253.405.0865
- Southwest Washington Electrical Joint Apprenticeship & Training Committee, Tony Lewis, Coordinator, 253.475.2922
- Southwest Washington Pipe Trades Apprenticeship Committee, Elmer Arter, Coordinator, 360.486.9400
- Aerospace Joint Apprenticeship Committee (AJAC)/Tacoma Machinist Apprenticeship Committee, Bob Storrar, Coordinator, 253.680.7258
- Washington State UBC JATC (South Puget Sound Carpenters JATC), Dan Lindbo, Coordinator, 253.472.2629

- Washington State Fire Fighters Joint Apprenticeship & Training Committee Dave Myers, Coordinator, 253.318.1638
- Washington State Parks & Recreation Commission/Washington Public Employees JATC
- Debbie Miller, Training Administrator, 425.649.4278
- Western Washington Sheet Metal JATC, Eric Peterson, Training Administrator, 360.459.9118
- Western Washington Operating Engineers Facilities Custodial Services Apprenticeship Committee, Jim Burnson, Training Director, 253.351.0184
- Western Washington Stationary Engineers Apprenticeship Committee, Jim Burnson, Training Director, 253.351.0184

Articulation Agreements with Colleges and Universities

Bates currently has agreements with several public and private colleges and universities to facilitate the transfer of credits and entry to educational options after earning Bates credentials:

- City University (multiple programs)
- The Evergreen State College (multiple)
- Mayville State University, North Dakota (distance learning option for Early Childhood Education/Child Care)
- University of Phoenix (multiple)
- University of Washington Tacoma (Computer Sciences)

Beyond the formalized articulation agreements, colleges have reciprocal transfer agreements and understandings relating to the transfer of courses. General education courses meeting guidelines of the Intercollege Relations Commission are identified as 'generally transferable' in course descriptions. To determine if Bates credits are transferable to a specific college or university, contact the registrar at the receiving institution.

Articulation Agreements with K-12

Bates works with K-12 school districts and other colleges and universities to provide additional educational options for students. K-12 articulation agreements are managed through the Pierce County Careers Connection.

These agreements provide students the opportunity to earn credit in the college's career education programs for Career and Technical Education programs at their high school. Stu-

dents should inquire at their district high school about which Bates options are available.

Business and Management Training

Bates' Business and Management Training Center provides on-site customized supervisory and professional development and technical skills training to companies, governmental entities, and non-profit organizations through its five departments:

1. Customized Company Training
 2. International Business Advising & Training
 3. International Education Programs
 4. Small Business Consultation
 5. Specialized Training and Workforce Development Grants
- More information: 253.680.7185, www.bates.ctc.edu/BMTC

Continuing Education

Continuing education courses for professional development and personal enrichment are student-supported and may include computer training, hobby classes, health and medical training, cooking classes, and training in construction and skilled trades areas. Generally held in the evenings and on weekends, the courses have quarterly start and end dates and include for-credit and not-for-credit courses. A schedule of continuing education courses is published four times a year and is available online at www.bates.ctc.edu/classschedule. Registration is available online, by phone, or in person at the downtown and south campuses. More information: 253.680.7300/7402, www.bates.ctc.edu/registration.

Distance Learning

Bates offers a variety of distance-learning options in career education, general education, and extended learning, including paraeducator training, teacher preparation, international education, and home and family life.

Web-facilitated formats blend face-to-face delivery with distance learning as well as offerings where most or all of the content is delivered via distance learning. More information: 253.680.7161.

Specialized Programs

Extended Learning

Extended learning courses are intended to be short-term training opportunities. The courses have specific start and end dates and are usually held evenings and weekends.

Bates also offers contract-funded or student-funded, non-credit extended learning courses to earn continuing education Units (CEUs). Ten clock-hours of instruction equals one CEU.

Documentation of coursework may be provided to the student in letter or certificate form, listing the student's name, course of study, and the number of CEUs awarded. After a student satisfactorily completes a designated element, a card is given to the student documenting course completion. More information: 253.680.7300 or 680.7402, www.bates.ctc.edu/extendedlearning

General Education Development

The General Education Development (GED) test certifies achievement of a high school level of academic knowledge and skills. GED testing is available through Bates' Assessment Center. More information: 253.680.7030, www.bates.ctc.edu/testing.

Industry Partnerships

In many career education programs, full-circle partnerships exist between Bates and industry. As new technologies and equipment are developed, they may be tested at Bates or provided to Bates for industry and student training. In some partnerships, industry provides specialized training according to specific hiring requirements. Students who meet those qualifications may apply for job openings as they occur and are often considered for internships (work-based learning opportunities).

Paraeducator Training

Through the convenience of distance learning, Bates' paraeducator training offers the opportunity to earn 100-level college credits from home.

Courses are designed to address the Washington State Core Competencies for Paraeducators and to meet the demand for accessible, affordable, and appropriate training for paraeducators.

(See page 78.) A grant from the Office of the Superintendent of Public Instruction (OSPI) helps to support the program.

Although paraeducators are the primary audience, people from a variety of life situations register for the courses. For teachers and other certificated individuals, the OSPI accepts the courses for certificate maintenance.

A certificate of training in Paraeducator Foundations is available. (See page 78.) More information: 253.680.7230, www.bates.ctc.edu/paraeducator

Career & Technical Education Teacher Preparation

As a Washington State Professional Educator Standards Board-approved provider of teacher certification, Bates offers professionals in business and industry a clear route to pursue career and technical education (CTE) teacher certification. The training prepares individuals with business and industry experience for CTE teaching careers at the secondary level.

Flexible scheduling makes it easy for to design a plan for program pacing and completion. We offer courses quarterly on weeknights and weekends and via distance learning. An accelerated summer weekday offering provides an opportunity to complete the majority of the courses during the summer. More information: 253.680.7161, www.bates.ctc.edu/teacherprep.

Professional Improvement Units

Through staff development activities, Bates offers a variety of non-credit staff and instructor improvement courses. Staff and student participation in these courses may be recognized with professional improvement units (PIUs) based on a standardized ratio: 10 clock-hours of instruction equals one PIU.

Documentation of student participation may be made in letter or certificate form and will list the student's name, course of study, and the number of PIUs awarded. Documentation provided to the student must be signed by the program administrator/manager.

Step Up

In this short-term training program, people earn certifications to acquire entry-level jobs. Job placement assistance is available for graduates of classes such as CPR/first aid, flagging certification, and forklift operations. More information: 253.680.7290

Veterans

Veterans who want to use veterans' benefits to attend Bates must meet with the veterans' coordinator located in student services.

Veterans Administration-funded students may participate in work-based learning experiences if they are completed in-residence at the college. More information: 253.680.7529 or 680.7035, www.bates.ctc.edu/financialaid.

WorkFirst

Bates partners with the Department of Social and Health Services, Employment Security, Pierce County WorkSource, and community-based organizations to provide free job search, job placement, and work experience opportunities for individuals who receive Temporary Aid for Needy Families (TANF).

Training programs are designed by industry professionals to satisfy the specific needs of each career field. Job placement assistance is available upon successful completion of training.

Eligible WorkFirst participants may qualify for up to one year of full-time training in several high-demand fields. More information: 253.680.7286

Worker Retraining

Worker Retraining funding provides unemployed and laid-off workers with immediate access to training, including:

- New job readiness programs for displaced workers
 - New and expanded training spaces in high-wage, high demand careers
 - An on-site Job Service Center that helps individuals find employment
- More information: 253.680.7299, www.bates.ctc.edu/workerretraining, or e-mail retraining@bates.ctc.edu.

Home and Family Life

Home and Family Life

Bates' Home and Family Life department offers job training and extended learning programs emphasizing knowledge, skills, and the understanding of values, attitudes, and standards that are important to specific careers and family life. More information: 253.680.7500, www.bates.ctc.edu/homefamily.

Childbirth Careers

Childbirth Instructor: An 18-month program to learn the technical and medical aspects of childbirth and the skills to educate families in the childbearing years. After completion, international certification is available through the International Childbirth Education Association.

Birth Doula: Students learn to provide continuous emotional support and physical comfort and assistance to pregnant mothers and their families during childbirth. After completion, international certification is available through Doulas of North America International.

Lactation Educator: Helps new mothers succeed at breastfeeding. After completion, international certification is available through the Childbirth and Postpartum Professional Association.

Childbirth Classes

A large selection of classes throughout the community is available to parents and extended families for support from pregnancy through postpartum. Low-income families may attend free childbirth preparation classes through medical coupons.

Child Care Advisory Program

The Child Care Advisory Program is a cooperative effort between approximately 30 licensed child care centers and Bates Technical College. Child care teachers and parents work directly with Bates professionals who provide training and support.

Child Development Associate (CDA)

The CDA program is designed for individuals who already have child care work experience in combination with some training in early childhood education. More information: 253.680.7500

Cooperative Preschools

Parents participate in a hands-on, interactive parent/child preschool classroom, learning the newest developmentally appropriate early childhood education and guidance techniques to meet the developmental needs of children aged two through five years. Experienced, trained teachers supervise in a safe and secure preschool environment. Faculty from Bates Technical College provide training, assistance, and support.

Early Childhood Education and Assistance Program (ECEAP)

The Early Childhood Education and Assistance Program (ECEAP) is incorporated into the child care center at Bates and in several sites throughout Pierce County. ECEAP provides additional services for young children, including health screening, developmental screening, and help with fees. The program is for families that qualify due to limited income. More information: 253.680.7324

Effective Parenting Courses

Effective Parenting with Positive Discipline courses are offered in English and Spanish. Research-based and nationally acclaimed, the courses help build positive parenting skills that include winning cooperation, building relationships, and reducing struggles. More information: 253.680.7511

Parent/Infant/Toddler Programs

An eight-week series of classes in which parents with children (birth to three years) participate in educational, age-appropriate activities with an emphasis on making brain connections through movement and music. A trained early childhood educator assists the children in these activities and provides safety and supervision.

A trained professional staff person from Bates Technical College provides parenting education classes, teacher and preschool board leadership training, and non-profit business assistance and support. More information: 253.680.7511.

Resource Center

A resource center for teachers and parents is located at Bates' south campus to help students, teachers, parents, and child care staff facilitate learning for infants, toddlers, preschoolers, and school-aged children.

Ongoing displays and activities include music, language, math, social skills, cognitive development skills, science, games, and rule development.

A library of resource books, videos, curriculum kits for teachers, and take-home activities is available. More information: 253.680.7500.

Sewing and Quilting Instruction

Sewing and quilting classes are designed in an open lab format for beginning, intermediate, and advanced students. An instructor is available for assistance in pattern and fabric selection, cutting, fitting, and sewing. Individual classes, workshops, and field trips are offered throughout the year. More information: 253.680.7006, www.bates.ctc.edu/fashion.

Washington State Training and Registry System (STARS)

STARS is based on Washington State WAC requirements for licensed child care centers. Bates accepts STARS courses from other state community and technical colleges, and Bates STARS courses transfer to other colleges. More information: 253.680.7500.

CHAPTER 3

Student Services

Student Services

Advising

Students are advised by career specialists and program instructors. Contact with career specialists and instructors on a continual basis is an important part of student success. Career specialists assist with:

- COMPASS results and general education placement
- Career education program choices
- College resources, support services
- Degree and certificate requirements
- Information on program costs
- Educational and program planning
- Understanding college policies and procedures

Instructors are available to help with:

- COMPASS results review
- Curriculum requirements
- Program prerequisites
- Licensing requirements
- Employment opportunities
- Job searches

Associated Student Government (ASG)

The Associated Student Government (ASG) is strongly supported by administration and faculty, helps in the promotion and development of student activities, and provides for direct student representation in establishing college policies. The ASG is responsible for developing student activities, the student activity budgets, and for representing student interests on college committees, including the General Advisory Committee and program advisories.

ASG officers meet with the college president regularly and the ASG president provides a monthly report to the Board of Trustees.

Each career education program is encouraged to send a representative to ASG meetings. More information: 253.680.7178, www.bates.ctc.edu/ASG.

Barber Shop and Beauty Salon

Students have access to the low-cost services of a 10-chair barber shop and a fully operational beauty salon. All work is performed by students in these programs.

Bookstores

Bookstores at the downtown and south campuses stock books, supplies and equipment used in high school and college programs. Operating hours are from 8 a.m. to 4 p.m., Monday through Friday. A list of required books, supplies, and equipment is available from program instructors.

Agency-funded students must present itemized authorization to the financial aid office for approval. Upon approval, items will be issued by the bookstore. Additional items will be issued by the bookstore with written approval from the instructor and funding agency. Book vouchers are not issued for students receiving state or federal financial aid. Students should plan to purchase books and supplies prior to the first disbursement of financial aid.

Bookstore Refund and Return Policy

Cash refunds are not permitted. Refunds of cash purchases or purchases made by check will be made via a refund check from the college. Credit card purchases are refunded to the credit card.

Sales of textbooks are refundable. Sales of safety equipment, optional books (including study guides), software, supplies, tools and kits are not returnable. For information on returns visit www.bates.ctc.edu/bookstore.

Career Education Information Sessions

If you are uncertain about which program to choose, select an area of interest and attend a **Career Education Information Session**. More information: 253.680.7002 or www.bates.ctc.edu/informationssessions.

Career Explorer

Students seeking advice, guidance, or information about career options are encouraged to take the Career Explorer which consists of four tests to help make well-informed career choices based on aptitudes, career interests, personality type, and achievement. More information: 253.680.7030.

Child Care

Bates' child care center is available to students and staff and includes an Early Childhood Education and Assistance Program (ECEAP) preschool. The center serves one-year olds through pre-kindergarten.

Hours are 6:30 a.m.-4:30 p.m., Monday through Friday, based on the college student calendar.

Several non-college child care centers are close to Bates. Financial support for child care is available for students who qualify through other college programs. For more information, call 253.680.7228 or 253.680.7320.

Dental Clinic

Bates' downtown campus dental clinic is open from 8 a.m. - 2 p.m., Monday through Thursday, and is available to Bates students, their families and the general public, age 5 and older. Services provided include fillings, extractions, crown & bridge and very limited root canals. The Bates Dental Clinic is a non-profit clinic with patient fees designed to cover the cost of dental salaries and patient service materials. Assistants in the clinic are students completing training in dental assisting techniques, theory and application.

Payment is due at the time of service. DSHS with the CNP identifier is accepted. Private dental insurance is not accepted.

Operating hours may change due to instructional needs. For more information, call 253.680.7310.

Diversity Center

The diversity center offers meeting The downtown campus diversity center advocates a college environment in which diverse cultures are respected and valued. Located in E301, the center is a welcoming space where discussions exist in an atmosphere of respect and trust, while providing an environment to learn about the diverse nature of our community. The center offers meeting spaces, computer workstations, a conversation corner, and a library with community information and diversity-related materials. Call 253.680.7178 or visit www.bates.ctc.edu/diversity.

Drug-Free Environment

It is the intent of the college to provide a drug free and secure work and learning environment and to comply with the Federal Drug Free Workplace Act of 1988 and the Drug Free Schools and Communities Act of 1986 (Public Law 99-570, Title IV, Sub-Title B) and its amendment of 1989 (Public Law 101-226).

Unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in and on college-owned or controlled property. The use of alcohol while on college-owned or controlled property is also prohibited, except when authorized in writing by the president for special functions.

Student Services

E-mail Accounts for Students

Registered career education students at Bates Technical College have the opportunity to have a student e-mail account provided as a service from Bates. More information: www.bates.ctc.edu/MyBates

Emergency Closures/School Delays

In the case of severe weather conditions or college emergencies, information regarding the status of Bates operations can be found by phoning the weather and schedule information line, 253.680.7060, and on the college website, www.bates.ctc.edu/weather. College closure information will also be available on major Puget Sound radio and television stations through the Public Schools Emergency Communication System, and on their website, www.schoolreport.org.

Financial Aid

See page 7 for financial aid eligibility standards and application procedures. More information: 253.680.7020, www.bates.ctc.edu/financialaid.

Food Service

Several food service options varying in offering and price are available. The culinary arts programs provide food service in cafeterias at the downtown and south campuses. Snacks are available in the bookstores; vending machines are located on campus.

Hearing Clinic

Bates operates a full service hearing clinic at the downtown campus in room E214. Students and the general public have access to free hearing assessments and hearing aid checks. Hearing aids are sold and serviced for a fee. More information: 253.680.7362.

Insurance

Enrollment at Bates does not include health or medical insurance. Students who desire medical coverage must purchase their own. Basic Accident Medical Expense, Basic Sickness Medical Expense and Dental and Major Medical Expense programs are available at low cost to Bates students while they are attending the college. Students who do not have accident insurance are strongly encouraged to take advantage of this reduced-cost option. Forms are available in the advising center.

Job Placement

Job placement assistance is generally provided by program instructors who have close ties with advisory committees and industry representatives.

Job Service Center

The Washington State Department of Employment Security maintains an office at the downtown campus, M214, to assist with job placement. Lists of jobs openings are available in the center. More information: 253.680.7240, www.Go2WorkSource.com.

Library

Library facilities are at the downtown and south campuses, and electronic resources are available from any internet-connected computer. Resources and services support the curriculum and the work of the college. Materials are available in many formats (print, video, audio, computerized) to better serve various learning styles. More information: e-mail (library@bates.ctc.edu), call 253.680.7220 (downtown campus), 253.680.7550 (south campus), or www.bates.ctc.edu/library.

Limitation of Liability

The college's total liability for claims arising from a contractual relationship with the student in any way related to classes or programs shall be limited to the tuition and expenses paid by the student to the college for those classes or programs. In no event shall the college be liable for any special, indirect, incidental, or consequential damages, including but not limited to, loss of earning or profits.

National Voter Registration Act

Voter registration forms are available in the registration office in conformance of Program Participation Requirement, Section 487(a)20 U.S.C. 1094(a).

Notice of Nondiscrimination

Bates Technical College reaffirms its policy of equal opportunity and does not discriminate on the basis of race, color, creed, religion, national origin, sex, sexual orientation, age, marital status, disability, or status as a disabled veteran or Vietnam era veteran in its programs and activities in accordance with college policy and applicable federal and state statutes and regulations.

Inquiries regarding Bates' non-discriminatory policies should be directed to the Vice President of Human Resources, 1101 South Yakima Avenue, Tacoma, Washington 98405, 253.680.7180. For further information on notice of non-discrimination and equal opportunity, see the list of OCR enforcement offices for the address and phone number of the office that serves your area, or call 1.800.421.3481.

Questions concerning the application of Title IX and its implementing regulations should be directed to the Vice President for Student Services, 1101 South Yakima Avenue, Tacoma, Washington 98405, 253.680.7005 or 1.800.562.7099, extension 7002.

Student Services

Parking

It is the responsibility of every Bates student to follow all parking rules and regulations. Check the website for detailed information. Parking permits are required for parking on any school property or in any official parking place and can be obtained from Campus Public Safety; www.bates.ctc.edu/campusafety

Parking fines:

- \$25 No valid permit displayed
- \$25 Occupying space not designated for parking
- \$25 Parking in an area not authorized by permit
- \$50 Parking in reserved staff space without authorization
- \$250 Handicapped parking violation
- \$50 Blocking or obstructing traffic (may be towed if creating a safety hazard)
- \$25 Parking adjacent to fire hydrant (may be towed if creating a safety hazard)
- \$25 Parking in an area marked "no parking"

Parking Fine Appeal: Parking fines, penalties and permit revocations may be appealed in some cases. A formal request, including details of the circumstances surrounding the infraction should be submitted to the college's VP for Administrative Services within five business days of receipt of the citation. If denied it will be forwarded to the Parking Advisory Committee for review. All decisions made by the parking advisory committee shall be final. Repeated or continued violations may result in having parking privileges revoked and/or vehicle impoundment at owner's expense.

Safety

Campus safety officers provide escorts for students and staff; respond to campus emergencies; patrol buildings, parking areas, and campus surroundings; and work with local law enforcement agencies.

All personal property should be kept under lock and key. Safety officers are on duty and should be contacted in case of theft or other concerns about property damage or physical endangerment. More information: www.bates.ctc.edu/CampusSafety. Downtown/Mohler/South Campus, call 253.680.7711.

Student Kiosk on Website

Students have access through Bates website www.bates.ctc.edu/students.asp, to view and print an unofficial copy of their transcript, a form to request an official transcript, to find out which required financial aid documents have not been received, and if and when the college has sent an award letter.

Tuition Refund Policy

State Funded Instruction
A student who has paid tuition before the quarter starts but is unable to attend the class may receive a full tuition refund. After the first day of class, Bates grants refunds as follows:

- From the 1st to the 5th calendar day of class – 80%
- From the 6th day to the 15th day calendar day – 40%
- After the 15th calendar day there is no refund

The General Refund policy applies to all students in state-supported programs. It is the student's responsibility to complete a withdrawal form and submit it the registration office. The date the withdrawal is received will be used for calculating refunds.

- Refunds will not be granted for students withdrawn for disciplinary reasons.
- Students called for military active duty will be granted a refund of tuition and laboratory/supply/computer use fees paid for the current payment period, subject to the rules and regulations of their respective funding sources. Presentation of written confirmation is required.

The general refund policy applies to all Bates students, regardless of financial aid status. The refund for students registered in courses or programs with an enrollment period other than the standard quarter will be applied on a prorated basis consistent with the general refund policy.

Refunds must be requested in writing by the student or the funding agency administrator. Refunds for special programs will be made directly to the funding agency administrator. Students who complete their program of training before the end of the quarter receive a prorated refund of the quarter fee upon audit of the student's records.

Tuition Refund Policy Financial Aid Recipients

Financial aid recipients are subject to the Return of Title IV Aid regulations, as stated in this catalog. (See page 7.)

Tuition Refund Policy Self-Support Classes

100%	If college cancels class
100%	Withdrawal on or before one business day prior to 1 st class
0%	Student registers, but does not attend
0%	Student withdraws after 1 st class

Tutoring

Tutoring is available at all campuses to registered students seeking assistance in any area related to academic success, including math, reading, writing, study skills, and program-specific materials. Assistance is also available to prospective students who are preparing to take the COMPASS or GED tests.

Special Needs & Disability Accommodation

Disability Support Services

The primary focus of the Disability Support Services Office (DSS) Office is to assure nondiscrimination on the basis of disability.

Through the DSS Office, qualified persons with disabilities can address their concerns regarding attitudinal or procedural barriers encountered, as well as any need for academic adjustments and/or auxiliary aids to assure equal access. The DSS Office will provide information and auxiliary aids or services, serving as a resource to the campus community while striving to make Bates Technical College both an accessible and hospitable place for persons with disabilities to enjoy full and equal participation. We work with individuals who have physical, learning and/or mental disabilities, are academically or economically disadvantaged, limited English speaking, single parents, ex-offenders, displaced homemakers, and gender equality programs.

Eligibility

It is the student's responsibility to identify him or herself as having a documented disability and seek assistance from the DSS. Bates Technical College recognizes that traditional methods, programs, and services may need to be altered to assure full accessibility to qualified persons with disabilities. A qualified student is one who:

- Has a physical, mental or sensory impairment that substantially limits one or more of her or his major life activities. Major life activity is defined as the ability to perform functions such as self-care, manual test taking, walking, seeing, hearing, speaking, breathing, learning, or working, and is either permanent or temporary;
- Has a record of such an impairment or;
- Is perceived to have such an impairment, or a student who has an abnormal condition that is medically cognizable or diagnosable.

Attendance

Students are expected to attend all of their scheduled classes. It is the instructor who determines the number of absences that are allowed in his or her class. If a student with a disability has an absence from class due to a disability-related circumstance, he or she should contact the DSS Office. Documentation must support the

disability-related circumstance. The absence does not excuse the student from the obligation of any assignments, homework, tests/exams, and obtaining material missed during the absence. Students are responsible for contacting their instructors.

Student Rights

You have a right to services and reasonable accommodations that allow you to compete on an equal basis as long as you meet the basic requirement to perform the activities of the program.

Equal Access

No qualified individual with a disability shall, by reason of such disability, be excluded from the participation in, or be denied the benefits of the services, programs or activities of any public entity, or be subject to discrimination by any such entity. Americans with Disabilities Act, 1990 (Section 202). No otherwise qualified handicapped person shall, on the basis of a handicap, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity which receives or benefits from Federal financial assistance. Rehabilitation Act of Congress, 1973; Title V (Section 504).

Obtaining Services

We are committed to helping you succeed. In order to receive and retain reasonable accommodations, you must:

- Make an appointment with the Disability Support Services Office at 253.680.7013, Relay Services 711
- Bring formal written documentation of your disability to the first meeting with the Disability Support Services Office. Documentation must be from a licensed professional;
- Request the accommodations you desire;
- Request services early for timely accommodations (preferably six weeks before starting classes).
- When your eligibility is established, it is your responsibility to present the Letter of Accommodation to all instructors at the beginning of each quarter. Discuss your accommodations with your instructor at the beginning of your class or program to ensure successful program completion.

Confidentiality

Information regarding a student's disability is considered confidential. Information will not be released to anyone outside of the college without the written permission of the student. Information may be shared within the college with appropriate faculty and staff to facilitate services and reasonable accommodations.

Transportation

Bates Technical College is accessible to students with physical disabilities through the Pierce Transit shuttle service.

Course Substitutions/Waivers

Bates Technical College does not substitute courses or waive course requirements that would alter essential program requirements.

The college considers requests for course substitutions or waivers according to procedures outlined in the Policies and Procedures Regarding Reasonable Accommodations for Students with Disabilities Under 504-ADA. The procedure is located in the downtown campus Disability Support Services office, room M211.

Student Grievance

A student with disabilities who may have a grievance with Bates Technical College staff or faculty regarding disability-related issues should contact DSS to obtain a copy of the grievance procedure.

Notice of Nondiscrimination

Bates Technical College reaffirms its policy of equal opportunity and does not discriminate on the basis of race, color, creed, religion, national origin, sex, sexual orientation, age, marital status, disability, or status as a disabled veteran or Vietnam era veteran in its programs and activities in accordance with college policy and applicable federal and state statutes and regulations.

Inquiries regarding Bates' non-discriminatory policies should be directed to the Vice President of Human Resources, 1101 South Yakima Avenue, Tacoma, Washington 98405, 253.680.7180. For further information on notice of non-discrimination and equal opportunity, see the list of OCR enforcement offices for the address and phone number of the office that serves your area, or call 1.800.421.3481.

Questions concerning the application of Title IX and its implementing regulations should be directed to the Vice President for Student Services, 1101 South Yakima Avenue, Tacoma, Washington 98405, 253.680.7005 or 1.800.562.7099, extension 7002.

Student Rights & Responsibilities

WAC Student Rights & Responsibilities Chapter 495A-121

Bates Technical College is a two-year public institution of higher education. The college is maintained by the State of Washington for the provision of programs of instruction in higher education and related community services. Broadly stated, the purpose of the college is to provide opportunities for all who desire to pursue educational goals. Like any other institution having its own special purposes, the college must maintain conditions conducive to the effective performance of its functions. To implement this objective, it is necessary to ensure that an environment is created wherein all students may progress in accordance with their capability and intensity of interest. The responsibility to create and maintain such an environment is shared by all members of the college community: students, faculty, staff, and administration.

Upon registration, all students will receive a copy of the Bates Technical College Student Handbook which details Student Rights & Responsibilities and includes chapters of the Washington Administrative Code (WAC) pertaining to student conduct.

Conduct codes are subject to change. The most current code provisions are in the Washington State Register and available at <http://apps.leg.wa.gov/WAC/default.aspx?dispo=true&cite=132E-120>

Family Educational Rights and Privacy Act (FERPA): Confidentiality of Student Records

In compliance with the Family Educational Rights and Privacy Act (FERPA) and the Washington Administrative Code, the following information is designated as directory information: student's name; program in which the student is registered; dates of attendance; date and place of birth; degrees and awards received; and most recent previous education agency or institution attended. Only designated members of the registration staff may disclose directory information. The FERPA affords students certain rights with respect to their educational records:

(1) The right to inspect and review the student's education records within 45 days of the day the college receives a request for access;

(2) The right to request the amendment of information contained in the student's education records that the student believes is inaccurate or misleading;

(3) The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent;

(4) The right to file a complaint with the U.S. Department of Education concerning alleged failures of the college to comply with the requirements of FERPA. Visit www.bates.ctc.edu/MyBates.

Directory information may be released by Bates Technical College without parental or student consent unless parents or adult students 18 years of age or older specifically request that such information not be released.

Bates Technical College does not release directory information for commercial purposes. Parents of students under age 18 or adult students currently attending Bates should complete a form in the registration office if they do not wish to have directory information released.

Student Right To Know

The Federal Student Right-To-Know and Campus Security Act requires institutions of higher education to report the percentages of completion and graduation rates for students registered full-time, first-time entering college, and degree or certificate students. Title II of this law, the Crime Awareness and Campus Security Act of 1990, requires publication of campus crime statistics and campus security policies. The third part of the law requires disclosure of student loan default rates.

These and other important, relevant statistics for each program, each campus, and the entire college can be viewed on the following websites: <http://nces.ed.gov/IPEDS/COOL/> (completion and graduate rates), <http://ope.ed.gov/security/> (campus security data), and www.ed.gov/about/offices/list/fsa/ (federal student aid).

Copies of these reports are also available in student services and the registrar's office. These reports reflect past student participation, completion rates, and placement wages ninety days after completion.

Policy Prohibiting Hazing

Hazing is prohibited at Bates. Consistent with state law, hazing is defined as any method of initiation into a student organization or group that causes or is likely to cause bodily danger or physical, mental, or emotional harm.

Examples of prohibited activities, regardless of location, include but are not limited to: forced consumption of alcohol or drugs, excessive exercise, activities that may threaten an individual's health, or compelling individuals to engage in activities which violate Bates' Student Code of Rights and Responsibilities.

Sexual Harassment Policy

All students must be allowed to learn in an environment free from sexual harassment. Sexual harassment may include unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature carried out by someone in the workplace or educational setting. Such behavior may offend the recipient, cause discomfort or humiliation, and interfere with job or school performance.

It is Bates' policy that sexual harassment is unacceptable conduct and will not be tolerated. Anyone violating this policy is subject to disciplinary procedures.

Bates is committed to communicating this policy to all staff and students, and to investigating and resolving promptly any complaints of sexual harassment. If a student feels his/her rights have been violated, he/she should contact the vice president of Student Services or the Vice President of Human Resources.

CHAPTER 4

Degrees and Certificate Programs

Accounting/Bookkeeping

Students prepare for careers in private or public businesses in positions including accounting technicians, full charge bookkeepers, accounts payable clerks, accounts receivable clerks and payroll clerks. From theory to application, students use computerized software common in business, such as Microsoft Excel, Microsoft Word and QuickBooks. Industry partnerships often provide opportunities for work-based experience in accounting-related environments. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Pre-requisites:

1. Must be ready to enroll in Math 92 or higher
2. Keyboarding skills are highly recommended.

Enrollment Dates: Fall and spring quarters

Program Length: Seven quarters (approximate)

FACULTY

Karen Scott, 253.680.7373, kscott@bates.ctc.edu

Susan Winter, 253.680.7373, swinter@bates.ctc.edu

Associate of Technology Degree: 111 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ACCT	101	MS Excel I	5
ACCT	102	Computer Basics	2
ACCT	103	Introduction to Bookkeeping for Sole Proprietor	3
ACCT	104	Introduction to Corporate Bookkeeping I	3
ACCT	105	Introduction to Corporate Bookkeeping II	3
ACCT	106	Introduction to Bookkeeping Business Simulation Lab	3
ACCT	108	MS Word I	5
ACCT	109	Electronic Business Math/Calculator	3
ACCT	111	Intermediate Bookkeeping I	5
ACCT	113	Intermediate Bookkeeping II	5
ACCT	115	Intermediate Bookkeeping III	5
ACCT	117	Intermediate Bookkeeping Lab	3
ACCT	120	Beginning Payroll	5
ACCT	201	MS Excel II	5
ACCT	205	Computerized Accounting I	5
ACCT	207	Computerized Accounting II	5
ACCT	210	Principles of Accounting I	5
ACCT	212	Principles of Accounting II	5
ACCT	214	Principles of Accounting Simulation Lab	3
ACCT	217	Business Law	5
ACCT	220	Advanced Payroll	5
ACCT	223	Advance Payroll Business Simulation Lab	3
ACCT	225	Federal Income Tax Fundamentals	5

Certificate of Competency: 65 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ACCT	101	MS Excel I	5
ACCT	102	Computer Basics	2
ACCT	103	Introduction to Bookkeeping for Sole Proprietor	3
ACCT	104	Introduction to Corporate Bookkeeping I	3
ACCT	105	Introduction to Corporate Bookkeeping II	3
ACCT	106	Introduction to Bookkeeping Business Simulation Lab	3
ACCT	108	MS Word I	5
ACCT	109	Electronic Business Math/Calculator	3
ACCT	111	Intermediate Bookkeeping I	5
ACCT	113	Intermediate Bookkeeping II	5
ACCT	115	Intermediate Bookkeeping III	5
ACCT	117	Intermediate Bookkeeping Lab	3
ACCT	120	Beginning Payroll	5

Administrative Medical Assistant

Students prepare for careers as integral members of a health care team in an outpatient setting. Competency-based activities in the program provide extensive hands-on practice for students in the use of computer application skills to create and handle medical information. Medical transcription and terminology, patient administrative services, and professional ethics are presented with emphasis on the billing procedures of the insurance industry. The program also provides extended learning opportunities for persons previously or currently employed in related professions. In addition, work-based learning experiences are available in many medical settings that support the theory presented in the classroom.

Note: Students must possess basic keyboarding/word processing skills prior to enrollment in the program.

Enrollment Dates: Fall and spring quarters

Program Length: Four quarters (approximate)

FACULTY

Diane Goracke, 253.680.7372, dgoracke@bates.ctc.edu
www.bates.ctc.edu/AdminMedicalAssistant

Certificate of Competency: 75 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ADMA	101	Introduction to the Health Care Profession	5
ADMA	102	Introduction to Medical Terminology	4
ADMA	103	Medical Transcription I	3
ADMA	104	Medical Office Procedures I	3
ADMA	105	Administrative Medical Procedures I	4
ADMA	106	Medical Terminology II	4
ADMA	107	Medical Office Procedures II	3
ADMA	108	Medical Transcription II	4
ADMA	109	Administrative Medical Procedures II	4
ADMA	110	Medical Terminology III	4
ADMA	111	Medical Insurance	4
ADMA	112	Medical Data Base	2
ADMA	113	Administrative Medical Procedures III	4
ADMA	114	Medical Terminology IV	4
ADMA	115	Coding	5
ADMA	120	Practical Applications *	3

* This course may be substituted with a work-based learning component.

Administrative Office Assistant

Students learn records management, grammar, business writing, professional ethics, and telephone techniques in preparation for jobs as office assistants, administrative assistants, secretaries, word processing specialists, and a variety of other office support positions. Students receive practical experience in several areas, including computer software technology, office procedures and accounting, and often gain work-based learning experience in temporary internships at local businesses or in residence at the college. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Enrollment Dates: Fall and spring quarters

Program Length: Seven quarters (approximate)

FACULTY

Sharon Netter, 253.680.7370, snetter@bates.ctc.edu

Associate of Technology Degree: 108 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AOA	101	Professional Communications	1
AOA	102	Professional Office Procedures	5
AOA	103	Telecommunications	1
AOA	104	Office Lead	1
AOA	105	Keyboarding I	5
AOA	106	MS Windows	3
AOA	107	MS Outlook	4
AOA	108	Records Management	4
AOA	109	Business Ethics	2
AOA	110	MS Word I	5
AOA	120	Keyboarding II	5
AOA	121	MS Word II	5
AOA	122	Business Grammar I	2
AOA	123	Business Documentation	5
AOA	124	Business Presentations	3
AOA	201	Beginning Accounting	5
AOA	202	Accounting Software	3
AOA	203	MS Excel I	5
AOA	204	MS PowerPoint	3
AOA	205	MS Access I	3
AOA	206	Voice Recognition Software	2
AOA	220	Keyboarding III	5
		or	
AOA	231	Machine Transcription	5
AOA	222	Business Grammar II	2
AOA	223	MS Excel II	5
AOA	224	Desktop Publishing	3
AOA	225	MS Access II	3
AOA	234	Employment Preparation	1
AOA	240	Independent AOA Project *	2

*This course may be substituted with a work-based learning component.

Certificate of Competency: 60 Credits

BASIC OFFICE SUPPORT

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK

REQUIRED COURSEWORK			CREDITS
AOA	101	Professional Communications	1
AOA	103	Telecommunications	1
AOA	104	Office Lead	1
AOA	105	Keyboarding I	5
AOA	106	MS Windows	3
AOA	107	MS Outlook	4
AOA	108	Records Management	4
AOA	109	Business Ethics	2
AOA	110	MS Word I	3
AOA	120	Keyboarding II	5
AOA	121	MS Word II	3
AOA	122	Business Grammar I	2
AOA	123	Business Documentation	5
AOA	203	MS Excel I	3
AOA	223	MS Excel II	3

Architectural Engineering

Students prepare for employment as architectural engineering technicians producing drawings for building permits, financing approval and construction. They work on actual residential design and drafting projects, prepare structural engineering documents to prove the integrity of building components, and interpret and apply building and energy codes while incorporating the Americans with Disabilities Act guidelines into the design of structures. Students are encouraged to apply for the Construction Document Technology (CDT) certificate offered through the Construction Specifications Institute.

Enrollment Dates: Fall and spring quarters

Program Length: Seven quarters (approximate)

FACULTY

Brian Magnussen, 253.680.7340, bmagnussen@bates.ctc.edu

Associate of Technology Degree: 120 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ARCH	101	Introduction to Architectural Engineering	2
ARCH	102	Blueprint Reading	3
ARCH	103	Technical Math I	5
ARCH	104	International Residential Codes I	3
ARCH	105	Energy Codes I	2
ARCH	106	Technical Math II	5
ARCH	107	Fundamentals of Drafting	5
ARCH	108	Introduction to Computer Aided Drafting	5
ARCH	109	Site Plans	3
ARCH	110	Floor Plans	3
ARCH	111	Elevations	3
ARCH	112	Floor Framing Plans	3
ARCH	113	Roof Framing Plans	3
ARCH	114	Foundation Plans	3
ARCH	115	Sections and Details	3
ARCH	116	Electrical, Mechanical and Plumbing Plans	3
ARCH	201	American with Disabilities Requirements	2
ARCH	202	Energy Codes II	2
ARCH	203	International Building Code	5
ARCH	204	Intermediate Computer Aided Drafting	5
ARCH	205	Construction Estimating	4
ARCH	206	Strength of Materials	5
ARCH	207	Technical Writing/ Construction Specifications	3
ARCH	208	Structural Engineering	5
ARCH	209	Design Project I	5
ARCH	210	Advanced Computer Aided Drafting	5
ARCH	211	Design Project II	5
ARCH	212	Design Project III	5

Architectural Woodworking/ Cabinet Making Technology

Students prepare for careers in cabinet making and millwork crafts, in positions such as wood pattern maker, cabinet maker, door assembler, solid surface fabricator, cabinet and millwork installer, project manager, sander, utility worker, wood pattern maker and machine operator. Shop activities are an integral part of the program and provide training and practical applications in complex joinery, finishing, and installation. Students work with wood and high-tech laminates, perform component design and fabrication, and learn the use of tools and equipment. This is a pre-apprenticeship program for the Seattle/Tacoma Millmen and Cabinet Makers Apprenticeship Committee. This program also provides extended learning opportunities for persons previously or currently employed in these and other related occupations.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Steve Dziedzic, 253.680.7251, sdziedzic@bates.ctc.edu

Associate of Technology Degree: 112 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
100+ Level	Human Relations	5
100+ Level	Communication	5
100+ Level	Mathematics	5

REQUIRED COURSEWORK		CREDITS
ARWC 101	Introduction to Cabinetmaking	3
ARWC 102	Safety Principles	4
ARWC 103	Cabinetry Blueprints/Plans	4
ARWC 104	Materials	2
ARWC 105	Machine Tools I	4
ARWC 106	Machine Tools II	4
ARWC 107	Machine Tools \CNC	3
ARWC 108	Portable Power Tools	3
ARWC 109	Hand Tools	3
ARWC 110	Basic Cabinet Joinery	4
ARWC 111	Tool Maintenance/Sharpening	3
ARWC 112	Cabinetmaking/ Face Frame Construction I	4
ARWC 113	Cabinetmaking/ Face Frame Construction II	4
ARWC 114	Cabinetmaking/32mm System	3
ARWC 115	Finishing Methods I	3
ARWC 116	Drawers and Doors	2
ARWC 117	Laminates / Countertops /Solid Surface	3
ARWC 118	Occupational Math	3
ARWC 119	Jigs and Fixtures	2
ARWC 120	Cabinetmaking/Commercial Construction	3
ARWC 201	Wood Bending/Lamination Techniques	3
ARWC 202	Architectural Millwork	3
ARWC 203	Beginning Furniture Projects	5
ARWC 204	Cabinet Installation- Residential/Commercial	4
ARWC 205	Advanced Joinery	4
ARWC 206	Cabinetmaking Computer Technology	4
ARWC 207	Veneering Technology	2
ARWC 208	Employment Preparation	3
ARWC 209	Advanced Projects *	5

*This course may be substituted with a work-based learning component.

Certificate of Competency: 79 Credits

PRODUCTION CABINET MAKING		CREDITS
GENERAL EDUCATION REQUIREMENTS		CREDITS
90+ Level	Human Relations	5
90+ Level	Communications	5
90+ Level	Mathematics	5
REQUIRED COURSEWORK		CREDITS
ARWC 101	Introduction to Cabinetmaking	3
ARWC 102	Safety Principles	4
ARWC 103	Cabinetry Blueprints/Plans	4
ARWC 104	Materials	2
ARWC 105	Machine Tools I	4
ARWC 106	Machine Tools II	4
ARWC 107	Machine Tools \CNC	3
ARWC 108	Portable Power Tools	3
ARWC 109	Hand Tools	3
ARWC 110	Basic Cabinet Joinery	4
ARWC 111	Tool Maintenance/Sharpening	3
ARWC 112	Cabinetmaking/ Face Frame Construction I	4
ARWC 113	Cabinetmaking/ Face Frame Construction II	4
ARWC 114	Cabinetmaking/32mm System	3
ARWC 115	Finishing Methods I	3
ARWC 116	Drawers and Doors	2
ARWC 117	Laminates / Countertops /Solid Surface	3
ARWC 118	Occupational Math	3
ARWC 119	Jigs and Fixtures	2
ARWC 120	Cabinetmaking/Commercial Construction	3

Audio/Sound Technology

Students prepare for careers in the audio, video, film, television, and multimedia industries, specializing in the technical and creative aspects of audio and sound, in one of the few audio programs offered in Washington State. Career paths could include audio record mixer, audio specialist, audio and video equipment technician, sound engineering technician, sound recording engineers, and sound specialist. Employment opportunities may be found in commercial, industrial, and educational production and broadcast facilities. Students have the option of becoming certified broadcast technologists through the Society of Broadcast Engineers.

Enrollment Dates: Every quarter including summer

Program Length: Four quarters (approximate)

FACULTY

Willie Kelley, 253.680.7761, wkelley@bates.ctc.edu

www.bates.ctc.edu/AudioSoundTech

Certificate of Competency: 93 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AUDIO	101	Introduction to Broadcast and Media Careers	3
AUDIO	02	Safety Principles	3
BROAD	105	Broadcast Electronics Theory	5
BROAD	106	Applied Electronics	3
BROAD	107	Electronic Principles I	5
BROAD	108	Electronic Principles II	5
AUDIO	110	Introduction to Digital Systems	2
AUDIO	111	Basic Maintenance and Troubleshooting	3
AUDIO	112	Characteristics of Sound	3
AUDIO	113	Studio Acoustics	2
AUDIO	114	Microphones	3
AUDIO	201	Introduction to Digital Audio Recording	2
AUDIO	202	Digital Audio Recording Techniques	5
AUDIO	203	Musical Instrumental Digital Interface (MIDI)	2
AUDIO	204	Studio Operations	4
AUDIO	205	Synchronization	2
AUDIO	206	Audio Processing	5
AUDIO	207	Monitoring	3
AUDIO	208	Introduction to Audio Production Console	1
AUDIO	209	Audio Production Console Techniques	5
AUDIO	210	Amplification	2
AUDIO	211	Production Audio Preparation	5
AUDIO	212	Communications Management	2
AUDIO	213	Employment Preparation	3

Auto Body Rebuilding & Refinishing

Students prepare for apprenticeship employment in the auto body rebuilding and refinishing industry, serving independent auto shops, automotive dealerships, government agencies, utility firms, and other companies that maintain vehicle fleets. Positions include auto body repairer, automotive refinisher, frame repairer, glass installer, painter, renovator, and shop estimator. Upon successful completion of the program, students can qualify to take the I-CAR steel welding qualification test. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Enrollment Dates: Every quarter including summer

Program Length: Seven quarters (approximate)

FACULTY

Bill Byrn, 253.680.7458, bbyrn@bates.ctc.edu

Doug Yarbrough, 253.680.7457, dyarbrough@bates.ctc.edu

Associate of Technology Degree: 116 Credits

GENERAL EDUCATION REQUIREMENTS CREDITS

100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK CREDITS

AUTOB	101	Auto Body Math Applications	3
AUTOB	102	Safety Principles	3
AUTOB	103	Materials Identification	3
AUTOB	104	Minor Body Repair Methods	5
AUTOB	105	Major Panel Replacement	5
AUTOB	106	Alignment – Sheet Metal	5
AUTOB	107	Alignment – Bumpers	3
AUTOB	108	Alignment – Head Lamps	1
AUTOB	109	Trim and Accessories	3
AUTOB	110	Window Mechanisms	4
AUTOB	111	Introduction to Surface Preparation	2
AUTOB	112	Surface Preparation Applications	5
AUTOB	113	Advanced Surface Preparations	5
AUTOB	201	Topcoat Systems	5
AUTOB	202	Topcoat Systems Applications	5
AUTOB	203	Shop Welding	5
AUTOB	204	Unibody Alignment	5
AUTOB	205	Body Over Frame Alignment	4
AUTOB	206	Glass Installation	4
AUTOB	207	Introduction to Plastic Repair	2
AUTOB	208	Plastic Repair Methods	5
AUTOB	209	Shop Management	3
AUTOB	210	Introduction to Estimating	4
AUTOB	211	Special Projects *	4
WBAS	101	Welding Basics	8

*This course may be substituted with a work-based learning component.

Certificate of Competency: 116 Credits

AUTO BODY REPAIR

GENERAL EDUCATION REQUIREMENTS CREDITS

90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK CREDITS

AUTOB	101	Auto Body Math Applications	3
AUTOB	102	Safety Principles	3
AUTOB	103	Materials Identification	3
AUTOB	104	Minor Body Repair Methods	5
AUTOB	105	Major Panel Replacement	5
AUTOB	106	Alignment n Sheet Metal	5
AUTOB	107	Alignment n Bumpers	3
AUTOB	108	Alignment n Head Lamps	1
AUTOB	109	Trim and Accessories	3
AUTOB	110	Window Mechanisms	4
AUTOB	111	Introduction to Surface Preparation	2
AUTOB	112	Surface Preparation Applications	5
AUTOB	113	Advanced Surface Preparations	5
AUTOB	201	Topcoat Systems	5
AUTOB	202	Topcoat Systems Applications	5
AUTOB	203	Shop Welding	5
AUTOB	204	Unibody Alignment	5
AUTOB	205	Body Over Frame Alignment	4
AUTOB	206	Glass Installation	4
AUTOB	207	Introduction to Plastic Repair	2
AUTOB	208	Plastic Repair Methods	5
AUTOB	209	Shop Management	3
AUTOB	210	Introduction to Estimating	4
AUTOB	211	Special Projects *	4
WBAS	101	Welding Basics	8

*This course may be substituted with a work-based learning component.

Certificate of Training: 20 Credits

AUTOMOTIVE REFINISHING

REQUIRED COURSEWORK CREDITS

AUTOB	102	Safety Principles	3
AUTOB	111	Introduction to Surface Preparation	2
AUTOB	112	Surface Preparation Applications	5
AUTOB	201	Topcoat Systems	5
AUTOB	202	Topcoat Systems Applications	5

Automotive Mechanic

In an active, campus auto service facility, students practice all aspects of the profession, from balancing tires to diagnosing engine problems. Using advanced computerized analyzers, students learn to perform repairs, overhaul engines and transmissions, service fuel injection systems, and much more. Bates' automotive program is certified by the National Automotive Technicians Education Foundation (NATEF) for both secondary and post-secondary levels. Bates' Automotive Mechanic program instructors are Evaluation Team Leaders for NATEF and evaluate other programs in the Puget Sound area for NATEF membership eligibility. Instruction is configured according to Automotive Service Excellence (ASE) certification requirements, and students are encouraged to take one or more ASE certification tests while completing the program.

Enrollment Dates: Every quarter including summer

Program Length: Eight quarters (approximate)

FACULTY

Mike Kinney, 253.680.7469, mkinney@bates.ctc.edu

Terry Shaffer, 253.680.7468, tshaffer@bates.ctc.edu

Associate of Technology Degree: 142 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AUTOM	101	Basic Engines	4
AUTOM	102	Engine Systems	4
AUTOM	103	Basic Electrical Theory	4
AUTOM	104	Engines/Electrical Applications	4
AUTOM	121	Basic Engine Performance	5
AUTOM	122	Basic Ignition Systems	5
AUTOM	123	Introduction to Fuel Systems	4
AUTOM	124	Introduction to Emissions Systems	2
AUTOM	125	Introduction to Fuel Injection	2
AUTOM	130	Introduction to Lighting and Instruments	4
AUTOM	131	Introduction to Clutches and Manual Transmissions	4
AUTOM	132	Automatic Transmissions/Transaxles	4
AUTOM	133	Four and All-wheel Drive	4
AUTOM	140	Wheel Alignment and Steering Systems	4
AUTOM	141	Brake Systems	4
AUTOM	142	Disc and Drum Brakes	4
AUTOM	143	Heating and Air Conditioning Systems	4
AUTOM	201	Advanced Engine Repair	5
AUTOM	202	Engine Assembly	3
AUTOM	203	Automotive Electrical Systems	4
AUTOM	204	Battery, Starters, and Charging Systems	4
AUTOM	220	Ignition Systems Service	4
AUTOM	221	Fuel Systems Service	4
AUTOM	222	Emissions Systems Service	3
AUTOM	223	Fuel Injection	3
AUTOM	230	Lighting and Instrument Service	3
AUTOM	231	Clutches and Manual Transmission Service	5
AUTOM	232	Automatic Transmission and Transaxle Service	4
AUTOM	233	Four and All-Wheel Drive Service	4
AUTOM	240	Advanced Wheel Alignment and Steering Systems Service	4
AUTOM	241	Advanced Brake Service	4
AUTOM	242	Advanced Disc and Drum Brake Service	4
AUTOM	243	Applied HVAC Service	3

Barber

Bates Technical College has the only college barber program in the State of Washington in which students prepare to become licensed barbers while learning in a stand-alone program and working in an on-campus shop that serves the public. Students are evaluated on the performance of each competency of the curriculum to ensure readiness to meet state licensure requirements and enter the profession. Prior to program completion, each student must take and pass a comprehensive written and practical examination that includes theoretical concepts. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Note: The minimum age for licensure as a barber in the State of Washington is 17 years of age.

Enrollment Dates: Every quarter including summer

Program Length: Four quarters (approximate)

FACULTY

Jeff Olson, 253.680.7248, jolson@bates.ctc.edu
www.bates.ctc.edu/Barber

Certificate of Competency: 75 Credits

REQUIRED COURSEWORK			CREDITS
BARB 110	Barbering Theory		1
BARB 111	Scalp and Hair Analysis		2
BARB 112	Shampooing		3
BARB 113	Decontamination and Infection Control		5
BARB 114	Introduction to Barbering		5
BARB 115	Safety/First Aid		2
BARB 116	Basic Haircutting Techniques		4
BARB 117	Customer Service		3
BARB 118	Applied Communications		3
BARB 120	Math for Barbers		3
BARB 121	Facial Hair		5
BARB 122	Barbering Applications		5
BARB 123	Intermediate Haircutting Techniques		3
BARB 124	Haircutting Applications		5
BARB 125	Applied Human Relations		3
BARB 131	Advanced Techniques		4
BARB 132	Advanced Applications		4
BARB 133	Cutting and Styling Methods		4
BARB 134	Cutting and Styling Applications		5
BARB 135	Hair Styling		2
BARB 136	Artificial Hair Services		2
BARB 137	Practical Applications*		2

*This course may be substituted with a work-based learning component.

Biomedical Equipment Service Technician: Clinical Engineering

Health care, the largest industry in the country, employs more than 14 million people, and figures continues to mount. From small-town private practices to mammoth inner-city hospitals, health care workers are in high demand. The patients in those practices and hospitals depend not only on the expertise of doctors and nurses, but on the proper functioning of sophisticated biomedical equipment. The people responsible for repairing and maintaining these highly specialized machines and instruments such as defibrillators, heart monitors, electric wheelchairs, medical imaging equipment (x rays, CAT scanners, and ultrasound equipment), are biomedical service technicians. They inspect and install equipment used by doctors, nurses, and other healthcare providers for researching, monitoring, diagnosing, and treating illnesses and disorders. They also repair, calibrate, and safety test the equipment in order to ensure proper function and safety for both the operator and the patient.

Enrollment Dates: Fall and spring quarters

Program Length: Seven quarters (approximate)

FACULTY

Art Cutting, 253.680.7252, acutting@bates.ctc.edu

Keith Hawkins, 253.680.7212, khawkins@bates.ctc.edu

www.bates.ctc.edu/Biomedical

Associate of Technology Degree: 118 Credits

GENERAL EDUCATION REQUIREMENTS

			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK

			CREDITS
BMST	101	Safety Principles	4
BMST	102	Blood borne Pathogens	3
BMST	103	HIPAA	2
BMST	104	Applied Math	4
EEST	103	Electronics Principles I	5
EEST	104	DC Electronics	4
EEST	105	AC Electronics	5
EEST	106	Capacitors	4
EEST	107	Electronics Principles II	5
EEST	108	Amplifiers and Transistors	4
EEST	109	Electronic Devices	2
EEST	110	Introduction to Programmable Logic Controllers	5
EEST	201	Electronic Principles - Automation	5
EEST	202	Antenna and Satellite Systems	3
EEST	203	Magnetic and Laser Media	3
EEST	204	RF Receivers and Audio Amps	4
BMST	105	Testing Equipment	5
BMST	106	Soldering	2
BMST	107	Schematics	3
BMST	109	Applied Service I	3
BMST	110	Applied Service II	2
BMST	201	Imaging Systems	3
BMST	204	Basic A&P for Biomedical Technology	4
BMST	215	Introduction to Medical Terminology	3
BMST	217	Biomedical Instrumentation	5
BMST	218	Biomedical Equipment	3
BMST	219	Medical Equipment Research	3
BMST	220	Biomedical Engineering Applications *	5

*This course may be substituted with a work-based learning component.

Biotechnology Lab Technician

Biotechnology is the use of genetically engineered cells to produce useful products including medicines, food additives and DNA testing. It also includes mapping of the human genome and learning how genes interact to make us who we are. Students in this program prepare for careers as technicians in labs, manufacturing facilities and media. Other employment areas include diagnostics and testing, genetic research, production and manufacturing, quality assurance, scientific product sales, and tissue culture and micro rogation.

Enrollment Dates: Fall and spring quarters

Program Length: Seven quarters (approximate)

FACULTY

Kelly Hamilton, 253.680.7452, khamilton@bates.ctc.edu

Sheryl Horstman, 253.680.7470, shorstman@bates.ctc.edu

www.bates.ctc.edu/Biotechnology

Associate of Technology Degree

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Mathematics	5
ENGL&	101	English Composition I	5
BIOL&	160	Biology	5
BIOL&	222	Molecular, Cellular, and Developmental Biology	5
BIOL&	260	Microbiology	5
CHEM&	121	Introduction to Chemistry	5
CHEM&	141	Chemistry	5
Elective	*Humanities/Social Sciences (See list.) (AAS-T Only)		5

REQUIRED COURSEWORK			CREDITS
BTECH	110	Basic Laboratory Safety	2
BTECH	111	Biohazard Abatement	2
BTECH	112	Hazardous Chemicals	2
BTECH	113	Introduction to Biotechnology I	5
BTECH	120	Introduction to Biotechnology II	5
BTECH	121	Media and Solutions	4
BTECH	130	Employment Preparation	3
BTECH	131	Laboratory Management	4
BTECH	132	Ethics and Science	3
BTECH	210	Journal Club	4
BTECH	211	Tissue and Cell Culture	5
BTECH	212	Advanced Laboratory Management	3
BTECH	220	Introduction to Molecular Techniques	5
BTECH	221	Protein Purification and Analysis I	5

Students must choose one option:

Option A: Biomanufacturing

BTECH	230	Biomanufacturing I: Regulatory Compliance	4
BTECH	231	Biomanufacturing II : Upstream Manufacturing Processes	4
BTECH	232	Biomanufacturing III: Downstream Manufacturing Processes	4
BTECH	233	Principles of Biomolecule Isolation	3

Option B: Tissue Culture/Contemporary Issues

BTECH	240	Plant Tissue Culture	5
BTECH	241	Tissue and Cell Culture	5
BTECH	242	Advanced Projects: Plant Tissue Culture	5

Option C: Flow Cytometry

BTECH	250	Topics in Immunology	5
BTECH	251	Advanced Projects: Immunology	2
BTECH	252	Flow Cytometry	5
BTECH	253	Advanced Projects: Flow Cytometry	3

Students must choose any three of the following courses.

BTECH	260	Advanced Projects: Flow Cytometry*	5
BTECH	261	Advanced Projects: Advanced Molecular Techniques*	5
BTECH	262	Advanced Projects: Laboratory Management*	5
BTECH	263	Advanced Projects: Immunology*	5
BTECH	264	Advanced Projects: Genetics*	5
BTECH	265	Advanced Projects: Mammalian Tissue Culture*	5

*This course may be substituted with a work-based learning component.

AAS-T Degree - Biomanufacturing: Credits 117

AAS-T Degree – Tissue Culture/Contemporary Issues : Credits 117

AAS-T Degree – Flow Cytometry: Credits 117

AT Degree - Biomanufacturing: Credits 112

AT Degree – Tissue Culture/Contemporary Issues: Credits 112

AT Degree – Flow Cytometry: Credits 112

SOCIAL SCIENCES/HUMANITIES ELECTIVES LIST

Students must choose one course from the following list:

ART&	100	Art Appreciation (WAOL)
CMST&	210	Interpersonal Communication
CMST&	220	Public Speaking
HIST	101	History of Science and Technology
PSYC&	100	General Psychology
SOC&	101	Introduction to Sociology (WAOL)
SOC	111	Understanding Diversity

Certificate of Competency: 90 Credits

BIOTECHNOLOGY LAB TECHNICIAN

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Mathematics	5
90+	Level	Communications	5
BIOL&	160	Biology	5
BIOL&	222	Molecular, Cellular, and Developmental Biology	5
BIOL&	260	Microbiology	5
CHEM&	121	Introduction to Chemistry	5
CHEM&	141	Chemistry	5

REQUIRED COURSEWORK			CREDITS
BTECH	100	Basic Laboratory Safety	2
BTECH	111	Biohazard Abatement	2
BTECH	112	Hazardous Chemicals	2
BTECH	113	Introduction to Biotechnology I	5
BTECH	120	Introduction to Biotechnology II	5
BTECH	121	Media and Solutions	4
BTECH	211	Tissue and Cell Culture	5
BTECH	220	Introduction to Molecular Techniques	5
BTECH	221	Protein Purification and Analysis	5

Students must choose one option:

Option A: Biomanufacturing

BTECH	230	Biomanufacturing I: Regulatory Compliance	4
BTECH	231	Biomanufacturing II : Upstream Manufacturing Processes	4
BTECH	232	Biomanufacturing III: Downstream Manufacturing Processes	4
BTECH	233	Principles of Biomolecule Isolation	3

Option B: Tissue Culture/Contemporary Issues

BTECH	240	Plant Tissue Culture	5
BTECH	241	Tissue and Cell Culture	5
BTECH	242	Advanced Projects: Plant Tissue Culture	5

Option C: Flow Cytometry

BTECH	250	Topics in Immunology	5
BTECH	251	Advanced Projects: Immunology	2
BTECH	252	Flow Cytometry	5
BTECH	253	Advanced Projects: Flow Cytometry	3

Biotechnology Lab Technician (continued)**Certificate of Training: 15 Credits****BIOMANUFACTURING**

REQUIRED COURSEWORK			CREDITS
BTECH	230	Biomanufacturing I: Regulatory Compliance	3
BTECH	231	Biomanufacturing II : Upstream Manufacturing Processes	5
BTECH	232	Biomanufacturing III: Downstream Manufacturing Processes	5
BTECH	233	Principles of Biomolecule Isolation	2

Certificate of Training: 15 Credits**TISSUE CULTURE**

REQUIRED COURSEWORK			CREDITS
BTECH	240	Plant Tissue Culture	5
BTECH	241	Tissue and Cell Culture	5
BTECH	242	Advanced Projects: Plant Tissue Culture	5

Certificate of Training: 15 Credits**FLOW CYTOMETRY**

REQUIRED COURSEWORK			CREDITS
BTECH	250	Topics in Immunology	5
BTECH	251	Advanced Projects: Immunology	2
BTECH	252	Flow Cytometry	5
BTECH	253	Advanced Projects: Flow Cytometry	3

Boat Building

Students prepare for apprentice-level employment in the boat building industry, filling positions in shipyards, marinas, and private boat building companies. Students obtain experience, through extensive hands-on training, in the construction of wood and fiberglass boats and are prepared for employment as aluminum fabricators, fiberglass laminators, wood and fiberglass toolmakers, joiners, and marine carpenters. The program also provides extended learning opportunities for persons previously or currently employed in the industry.

Enrollment Dates: Every quarter including summer
Program Length: Six quarters (approximate)

FACULTY

Chuck Graydon, 253.680.7439, cgraydon@bates.ctc.edu
 www.bates.ctc.edu/Boatbuilding

Associate of Technology Degree: 105-118 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
BOATS 101	Industrial and Shop Safety		3
BOATS 102	Tools, Materials, and Fasteners		3
BOATS 103	Shop Math and Planning		3
BOATS 104	Woodworking Lab		5
BOATS 105	Line Drawing		3
BOATS 106	Templates		3
BOATS 107	Scale Modeling		6
BOATS 108	Damage Assessment		3
BOATS 109	Documentation		3
BOATS 110	Repair Techniques		5
BOATS 111	Vessel Documentation and Research		3
BOATS 112	Vessel Stabilization		3
BOATS 113	Restoration Techniques		6
BOATS 120	Practical Applications*		2

Students must choose one option:

Option A: Boatbuilding			CREDITS
BOATS 201	Full-Sized Lofting		3
BOATS 202	Bevel Calculation		3
BOATS 203	Construction Drawing		3
BOATS 204	Line Pickup		3
BOATS 205	Planning Methods		3
BOATS 206	Component Fabrication		3
BOATS 207	Building Setup		6
BOATS 208	Framing		6
BOATS 209	Hull Fabrication		6
BOATS 210	Fitting-Out		6
BOATS 211	Rigging and Systems		6
BOATS 220	Practical Applications*		4

Option B: Marine Interior Joiner and Deckhouse

BOATS 212	Planning/Layout		3
BOATS 213	Mockups		6
BOATS 214	Joinery Methods		3
BOATS 215	Parts Fabrication		6
BOATS 216	Veneers and Laminates		3
BOATS 217	Pre-Assembly Methods		4
BOATS 218	Hardware Installation Methods		4
BOATS 219	Final Assembly		4
BOATS 221	Practical Applications*		3

*This course may be substituted with a work-based learning component.

Certificate of Competency: 105-118 Credits

BOAT BUILDER			CREDITS
GENERAL EDUCATION REQUIREMENTS			
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
BOATS 101	Industrial and Shop Safety		3
BOATS 102	Tools, Materials, and Fasteners		3
BOATS 103	Shop Math and Planning		3
BOATS 104	Woodworking Lab		5
BOATS 105	Line Drawing		3
BOATS 106	Templates		3
BOATS 107	Scale Modeling		6
BOATS 108	Damage Assessment		3
BOATS 109	Documentation		3
BOATS 110	Repair Techniques		5
BOATS 111	Vessel Documentation and Research		3
BOATS 112	Vessel Stabilization		3
BOATS 113	Restoration Techniques		6
BOATS 120	Practical Applications*		2

Students must choose one option:

Option A: Boatbuilding			CREDITS
BOATS 201	Full-Sized Lofting		3
BOATS 202	Bevel Calculation		3
BOATS 203	Construction Drawing		3
BOATS 204	Line Pickup		3
BOATS 205	Planning Methods		3
BOATS 206	Component Fabrication		3
BOATS 207	Building Setup		6
BOATS 208	Framing		6
BOATS 209	Hull Fabrication		6
BOATS 210	Fitting-Out		6
BOATS 211	Rigging and Systems		6
BOATS 220	Practical Applications*		4

Option B: Marine Interior Joiner and Deckhouse

BOATS 212	Planning/Layout		3
BOATS 213	Mockups		6
BOATS 214	Joinery Methods		3
BOATS 215	Parts Fabrication		6
BOATS 216	Veneers and Laminates		6
BOATS 217	Pre-Assembly Methods		4
BOATS 218	Hardware Installation Methods		4
BOATS 219	Final Assembly		4
BOATS 221	Practical Applications*		3

*This course may be substituted with a work-based learning component.

Boat Building (continued)**Certificate of Training: 14 Credits****INTRODUCTION TO WOODWORKING**

REQUIRED COURSEWORK			CREDITS
BOATS	101	Industrial and Shop Safety	3
BOATS	102	Tools, Materials, and Fasteners	3
BOATS	103	Shop Math and Planning	3
BOATS	104	Woodworking Lab	5

Certificate of Training: 12 Credits**SCALE MODELING**

REQUIRED COURSEWORK			CREDITS
BOATS	105	Line Drawing	3
BOATS	106	Templates	3
BOATS	107	Scale Modeling	6

Certificate of Training: 19 Credits**BOAT REPAIR**

REQUIRED COURSEWORK			CREDITS
BOATS	108	Damage Assessment	3
BOATS	109	Documentation	3
BOATS	110	Repair Techniques	5
WBAS	101	Welding Basics	8

Certificate of Training: 12 Credits**VESSEL RESTORATION**

REQUIRED COURSEWORK			CREDITS
BOATS	111	Vessel Documentation and Research	3
BOATS	112	Vessel Stabilization	3
BOATS	113	Restoration Techniques	6

Broadcasting and Video Production

The broadcasting curriculum has been examined by and meets the requirements of the Society of Broadcast Engineers (SBE). Students are encouraged to test for the SBE certification upon completion of the program. Three options are offered: Broadcast Operations includes on-air master control, content storage, playback operations, and editing; satellite down-link operations; operations/systems technician; automation technician; and VIS (visual information specialist). Broadcast Engineering includes transmitter/microwave operations; video server/non-linear editing; technical training to support electronic news, sports, and field productions; transcoding and compression systems; broadcast equipment installation, maintenance, operation; and the technical training to support electronic news, sports and field productions. Video Production includes planning and script development; lighting; set design and construction; camera operation; sound mixing; technical directing; content editing; graphics generation; and equipment training to support studio and remote production.

Enrollment Dates: Every quarter including summer
Program Length: Six quarters (approximate)

FACULTY

Roland Robinson, 253.680.7754, rrobinson@bates.ctc.edu
 Mike Scott, 253.680.7756, mscott@bates.ctc.edu
www.bates.ctc.edu/Broadcasting

Associate of Technology Degree: 110 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
BROAD	101	Safety Principles	1
BROAD	105	Broadcast Electronics Theory	5
BROAD	106	Applied Electronics	3
BROAD	107	Electronic Principles I	5
BROAD	108	Electronic Principles II	5
BROAD	113	Master Control Operations I	3
BROAD	115	Record/ Playback Devices	3
BROAD	117	Program Editing I	3
BROAD	119	Basic Maintenance Techniques	3
BROAD	121	Production Process Theory	3
BROAD	123	Introduction to Broadcast Systems	3
BROAD	125	Video Tape	3
BROAD	127	Production Editing I	3
BROAD	128	Employment Preparation	3

Students must choose one option:

Option A: Engineering

BROAD	201	Analog Systems I	3
BROAD	202	Advanced Broadcast Formats	3
BROAD	203	Introduction to Digital Systems	2
BROAD	206	Power and Communication Systems	3
BROAD	209	AC/DC Circuits	5
BROAD	210	AC/DC Applications	4
BROAD	217	Audio Engineering	5
BROAD	219	Video Engineering	4
BROAD	285	Practicum I *	5

Option B: Operations

BROAD	221	Satellite Communications	2
BROAD	231	Broadcast Station Operations	5
BROAD	233	Communications Management	3
BROAD	235	Control Room Equipment I	5
BROAD	237	Control Room Equipment II	5
BROAD	243	Master Control Operations II	5
BROAD	245	Non-Linear Editing / Format and Systems	4
BROAD	286	Practicum II *	5

Option C: Production

BROAD	251	Introduction to the TV Process	3
BROAD	252	TV Production Applications	5
BROAD	254	Principles of Lighting	5
BROAD	255	Lighting Techniques	5
BROAD	257	Elements of Audio I	3
BROAD	258	Audio Techniques	5
BROAD	260	Studio Camera Equipment	3
BROAD	287	Practicum III *	5

ELECTIVES: All options choose 15 credits from Electives List.

* This course may be substituted with a work-based learning component.

ELECTIVES LIST			CREDITS
BROAD	204	Introduction to Operating Systems	3
BROAD	205	Receivers/Transmitters	5
BROAD	213	Digital Television Standards	3
BROAD	215	ATSC Formats and Transcoding	2
BROAD	221	Satellite Communications	2
BROAD	223	Systems Maintenance	5
BROAD	225	Installation and Maintenance Methods	4
BROAD	227	DTV Trans-Systems /BVS	4
BROAD	229	Compression MPEG-II & AC-3	2
BROAD	247	Program Editing II	5
BROAD	249	Network Storage and Control	3
BROAD	257	Elements of Audio I	3
BROAD	258	Audio Techniques	5
BROAD	261	Studio Camera Operations	5
BROAD	262	Set Design	3
BROAD	265	Field Production	7
BROAD	267	Production Editing II	2
BROAD	272	Introduction to Video Graphics	5
BROAD	273	Video Graphics Applications	5
BROAD	276	Technical Directing I	6
BROAD	277	Technical Systems Methods	6
BROAD	281	Introduction to Digital TV	2
BROAD	282	Introduction to Video Formats	3
BROAD	283	Emerging Technologies	3
BROAD	288	Practicum IV *	5
BROAD	289	Practicum V *	5
BROAD	290	Practicum VI *	5

* This course may be substituted with a work-based learning component.

Certificate of Competency: 61 Credits

BROADCAST AND VIDEO ELEMENTS			CREDITS
GENERAL EDUCATION REQUIREMENTS			
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
BROAD	101	Safety Principles	1
BROAD	105	Broadcast Electronics Theory	5
BROAD	106	Applied Electronics	3
BROAD	107	Electronic Principles I	5
BROAD	108	Electronic Principles II	5
BROAD	113	Master Control Operations I	3
BROAD	115	Record/ Playback Devices	3
BROAD	117	Program Editing I	3
BROAD	119	Basic Maintenance Techniques	3
BROAD	121	Production Process Theory	3
BROAD	123	Introduction to Broadcast Systems	3
BROAD	125	Video Tape	3
BROAD	127	Production Editing I	3
BROAD	128	Employment Preparation	3

Carpentry

Students prepare for apprenticeship employment in the construction industry, filling positions such as carpenter, framer, concrete worker, and interior and exterior finisher. Off-campus building and remodeling projects provide opportunities for extensive practical training, giving students valuable experience in the trade, from estimating construction projects through all phases of construction. This is a pre-apprenticeship program for the South Puget Sound Carpenters Joint Apprenticeship Training Committee.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Chris Buselmeier, 253.680.7453, cbuselmeier@bates.ctc.edu

www.bates.ctc.edu/Carpentry

Associate of Technology Degree: 120 Credits

GENERAL EDUCATION REQUIREMENTS CREDITS

100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK CREDITS

CARPT	101	Carpentry Math	3
CARPT	102	Safety Principles	3
CARPT	103	Prints and Plans	4
CARPT	104	Construction Materials	2
CARPT	105	Tools and Equipment	4
CARPT	106	Power Tools	5
CARPT	107	Optical Instruments	3
CARPT	108	Plot Plans and Building Layout	3
CARPT	109	Introduction to Framing	4
CARPT	110	Foundation	3
CARPT	111	Foundation Footings	3
CARPT	112	Foundation Walls	5
CARPT	201	Floor Systems	5
CARPT	202	Wall and Ceiling Construction	5
CARPT	203	Stairs	3
CARPT	204	Introduction to Roofing	3
CARPT	205	Roof Construction	5
CARPT	206	Introduction to Exterior Finish Methods	4
CARPT	207	Exterior Doors and Windows	5
CARPT	208	Siding	5
CARPT	209	Introduction to Interior Finish Methods	3
CARPT	210	Interior Floors, Walls, and Ceilings	4
CARPT	211	Interior Doors and Windows	5
CARPT	212	Moldings	4
CARPT	213	Employment Preparation	2
CARPT	215	Practical Applications*	2
WBAS	101	Welding Basics	8

*This course may be substituted with a work-based learning component.

Certificate of Competency: 77 Credits

CARPENTRY TECHNICIAN

GENERAL EDUCATION REQUIREMENTS CREDITS

90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK CREDITS

CARPT	101	Carpentry Math	3
CARPT	102	Safety Principles	3

CARPT	103	Prints and Plans	4
CARPT	104	Construction Materials	2
CARPT	105	Tools and Equipment	4
CARPT	106	Power Tools	5
CARPT	110	Foundation	3
CARPT	111	Foundation Footings	3
CARPT	112	Foundation Walls	5
CARPT	201	Floor Systems	5
CARPT	202	Wall and Ceiling Construction	5
CARPT	203	Stairs	3
CARPT	205	Roof Construction	5
CARPT	208	Siding	5
CARPT	211	Interior Doors and Windows	5
CARPT	215	Practical Applications*	2

*This course may be substituted with a work-based learning component.

Certificates of Training

CONCRETE FOUNDATIONS: 14 Credits

REQUIRED COURSEWORK CREDITS

CARPT	108	Plot Plans and Building Layout	3
CARPT	110	Foundation	3
CARPT	111	Foundation Footings	3
CARPT	112	Foundation Walls	5

EXTERIOR FINISHING: 22 Credits

REQUIRED COURSEWORK CREDITS

CARPT	204	Introduction to Roofing	3
CARPT	205	Roof Construction	5
CARPT	206	Introduction to Exterior Finish Methods	4
CARPT	207	Exterior Doors and Windows	5
CARPT	208	Siding	5

INTERIOR FINISHING: 16 Credits

REQUIRED COURSEWORK CREDITS

CARPT	209	Introduction to Interior Finish Methods	3
CARPT	210	Interior Floors, Walls, and Ceilings	4
CARPT	211	Interior Doors and Windows	5
CARPT	212	Moldings	4

WOOD FRAMING: 22 Credits

REQUIRED COURSEWORK CREDITS

CARPT	109	Introduction to Framing	4
CARPT	201	Floor Systems	5
CARPT	202	Wall and Ceiling Construction	5
CARPT	203	Stairs	3
CARPT	205	Roof Construction	5

Civil Engineering Technology

Students prepare for careers as civil engineering technicians who typically work under the direct supervision of a project engineer. The program environment emulates a civil engineering/surveying firm, giving students practice in many aspects of the profession, including defining project requirements, conducting survey/field work, field engineering, construction staking, designing, estimating, modeling and client presentations. Instruction includes computer-aided design, the preparation of engineering calculations, and coordinate systems which include lengths, directions, slopes, bearings areas, volumes, weights densities, moments, forces, reactions, flows, and loads. Students learn to use a variety of computer software application packages, including, but not limited to Word, Excel, CadreLite, Hydrocad, Civil 3D, and GIS.

Prerequisites: Successful completion of MATH 98 and Writing 98 or equivalents.

FACULTY

E. J. Fancett, 253.680.7341, ejfancett@bates.ctc.edu
www.bates.ctc.edu/CivilEngineering

Enrollment Dates: Fall, spring, and summer quarters

Program Length: Six quarters (approximate)

Certificate of Competency: 66 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
CET	101	Introduction to Civil Engineering	3
CET	103	Statics	3
CET	105	Structural Analysis	3
CET	107	CAD – 2Dimension	3
CET	109	Introduction to Surveying	3
CET	111	Civil 3D Surfaces and Points	3
CET	113	Hydrology	3
CET	115	Agency Requisites	3
CET	117	GIS Resources	3
CET	121	Coordinate Geometry	3
CET	123	Alignment and Profiles	3
CET	125	Basic Corridors in Civil 3D	3
CET	127	Surveying - Control	3
CET	131	Construction Materials	3
CET	133	Civil 3D Grading	3
CET	135	Utilities Design	3
CET	137	Topographic Surveying	3

Associate of Technology Degree: 102 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
CET	101	Introduction to Civil Engineering	3
CET	103	Statics	3
CET	105	Structural Analysis	3
CET	107	CAD – 2Dimension	3
CET	109	Introduction to Surveying	3
CET	111	Civil 3D Surfaces and Points	3
CET	113	Hydrology	3
CET	115	Agency Requisites	3
CET	117	GIS Resources	3
CET	121	Coordinate Geometry	3
CET	123	Alignment and Profiles	3
CET	125	Basic Corridors in Civil 3D	3
CET	127	Surveying - Control	3
CET	131	Construction Materials	3
CET	133	Civil 3D Grading	3
CET	135	Utilities Design	3
CET	137	Topographic Surveying	3
CET	202	Finite Element Models	3
CET	204	3D Structural Modeling	3
CET	208	Civil 3D Structural Sections	3
CET	210	Contract Documents	3
CET	212	Open Channel Flow	3
CET	214	Drainage Reports	3
CET	216	Civil 3D – Storm Plans	3
CET	218	Erosion Control	3
CET	220	Road Design	3
CET	222	Construction Drawings	3
CET	224	Advanced Corridors in Civil 3D	3
CET	226	Construction Staking	3

Commercial Truck Driving-Entry Level

Bates Technical College is the only school in Washington State certified by the Professional Truck Driver Institute. Students prepare for entry-level employment as commercial truck drivers with the goal of a Class A Commercial Driver's License (CDL) with all endorsements. Training takes place in classrooms, on Bates' truck driving range, and on the road, using a variety of equipment.

Note: Through an Opportunity Grant, special tuition and book funding is available to assist low-income adult students entering this program. Contact Ramon Burton, 253.680.7544, for more information.

Prerequisites:

1. Applicants must have a valid Washington State driver's license and a good driving record.
2. Applicants must pass the Washington State Department of Transportation physical exam and drug screen.
3. Applicants must be a minimum of 18 years of age to enroll in local commercial driving.
4. Applicants must be a minimum of 21 years of age to enroll in long-haul commercial driving.

Enrollment Dates: Every quarter including summer

Program Length: Two quarters (approximate)

FACULTY

Tom Deligeannis, 253.680.7493, tdeligeannis@bates.ctc.edu
 Dan French, 253.680.7483, dfrench@bates.ctc.edu
 Louie French, 253.680.7484, lfrench@bates.ctc.edu
 Bob Gunter, 253.680.7486, bgunter@bates.ctc.edu
 Ken Thompson, 253.680.7485, kthompson@bates.ctc.edu
 Wade Westphal, 253.680.7491, wwestphal@bates.ctc.edu
www.bates.ctc.edu/TruckDriving

Certificate of Training: 40 Credits

REQUIRED COURSEWORK			CREDITS
TRUCK	101	Safety/First Aid	3
TRUCK	102	Introduction to the Trucking Industry	4
TRUCK	103	Commercial Driver's License (CDL)	4
TRUCK	104	Pre-Trip Requirements	3
TRUCK	105	Close Quarters Operation	5
TRUCK	106	Materials/Cargo I	3
TRUCK	107	City/Town Driving	5
TRUCK	108	Freeway/Open Road I	5

Students must choose one option:

OPTION A: Local

TRUCK	110	City/Town Driving	4
TRUCK	111	Materials/Cargo II	4

OPTION B: Long Haul

TRUCK	112	Freeway/Open Road II	4
TRUCK	113	Advanced Commercial Driving	4

Computer Networking Systems Technician

Computer network systems technicians link the hardware and software that comprise computer data communications networks. They install, configure and maintain network components, work on client workstations, servers, domain controllers, shared printers, cables, and routers. They maintain network equipment, applications, data and user interfaces and workstations as well as troubleshoot local and wide area networks. Desktop, server and network administration positions are needed in all industries due to the ongoing movement towards computer automation. Students are encouraged to obtain Microsoft, Comptia and Cisco certifications, including A+, MCSA, MCITP, MCTS, MCDST and CCNA.

Enrollment Dates: Fall, spring, and summer quarters

Program Length: Six quarters (approximate)

FACULTY

John Davis, 253.680.7354, jodavis@bates.ctc.edu
www.bates.ctc.edu/ComputerNetworking

Associate of Technology Degree: 113 Credits

GENERAL EDUCATION REQUIREMENTS

			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSE WORK

			CREDITS
ETECH	101	Introduction to Electronics	2
ETECH	102	DC Circuits	5
ETECH	103	AC Circuits	5
ETECH	104	Analog Circuits	5
ETECH	105	Digital Circuits	5
ETECH	106	Microcontrollers	5
CNST	110	MS Client Operating Systems	5
CNST	201	Introduction to Cisco Internetworking	5
CNST	202	Introduction to Cisco Routing Technologies	4
CNST	205	Fundamentals of Linux	5
CNST	207	Network Infrastructure	5
CNST	209	Directory Services	5
CNST	210	Network Security	5
INFO	101	Computer Applications Essentials	4
INFO	104	A+ Essentials	4
INFO	105	A+ Practical	4
INFO	110	Emerging Technologies	5

Students must choose 20 credits from the attached elective list.

ELECTIVES LIST

			CREDITS
WIRE	201	Telecommunications Network Cabling	5
WIRE	202	Fiber Optics	5
CNST	212	LAN Switching	5
CNST	213	Accessing the WAN and Wireless	5
INFO	108	Project Management	5
INFO	109	Employment Preparation	5

Computer Repair & Network Support

Structured as a shorter alternative to the computer networking systems technician program, students prepare for employment as computer systems technicians. Instruction includes A+, CCNA, the Cisco Networking Academy, MCP (Microsoft Certified Professional) Windows operating systems, and one of two electives: Fundamentals of UNIX or Career Advancement Strategies. Students are encouraged to obtain industry certifications before graduating, including Cisco Networking Academy, CompTIA A+ (two tests), Microsoft Certified Professional (one test).

Enrollment Dates: Every quarter including summer

Program Length: Three quarters (approximate)

FACULTY

Tom Denney, 253.680.7351, tdenney@bates.ctc.edu

Joe Toth, 253.680.7355, jtoth@bates.ctc.edu

Certificate of Competency: 62 Credits

GENERAL EDUCATION REQUIREMENTS

			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK

			CREDITS
CRNS	103	A+ Essentials	4
CRNS	104	A+ Practical	4
CRNS	106	Cisco Networking Fundamentals	5
CRNS	107	Cisco Routing Protocols and Concepts	5
CRNS	109	MS Client Operating System	5
CRNS	110	MS Client Operating System Lab	4
CRNS	111	Advanced Projects	5

Students must choose 15 credits from the electives list.

Certificate of Training: 40 Credits

A+/MCP CERTIFICATION TRAINING

REQUIRED COURSEWORK

			CREDITS
CRNS	102	Fundamentals of Computer Repair	2
CRNS	103	A+ Essentials	4
CRNS	104	A+ Practical	4
CRNS	106	Cisco Networking Fundamentals	5
CRNS	107	Cisco Routing Protocols and Concepts	5
CRNS	109	MS Client Operating System	5
CRNS	111	Advanced Projects	5

Students must choose 10 credits from the electives list.

ELECTIVES LIST

			CREDITS
CRNS	112	Security Plus	5
CRNS	120	Employment Preparation	5
WIRE	201	Telecommunications Network Cabling	5
WIRE	202	Fiber Optics	5
CNST	212	LAN Switching	5
CNST	213	Accessing the WAN and Wireless	5

Cosmetology

Students work in a salon environment to prepare for a variety of professional careers including hairstylist, color specialist, perm specialist, esthetician, nail care artist, manicurist, salon owner, instructor, skin care specialist, makeup artist, salon manager, sales consultant, manufacturer sales representative, fashion show stylist, beauty care product distributor, beauty product designer and consultant.

Note: Students must take and pass the State of Washington's written and practical examination to be eligible to apply for a Washington State cosmetology license.

Enrollment Dates: Fall and spring quarters

Program Length: Four quarters (approximate)

FACULTY

David Kile, 253.680.7249, dkile@bates.ctc.edu

www.bates.ctc.edu/Cosmetology

Associate of Technology Degree: 119 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5
REQUIRED COURSEWORK			CREDITS
COSME	101	Sanitation Practices	2
COSME	102	Math for Cosmetologists	1
COSME	103	Safety and First Aid	1
COSME	104	State Law	4
COSME	105	The Salon Operation of a Business Theory	2
COSME	106	Salon Operation Management	4
COSME	107	Shampooing, Rinsing, And Conditioning Theory	2
COSME	108	Shampooing, Rinsing, And Conditioning Practical	2
COSME	109	Manicure/Pedicure Theory	3
COSME	110	Beginning Manicures/Pedicure Practical	1
COSME	120	Manicures/Pedicure Practical	1
COSME	121	Elements of Thermo-Round Celled Practical	4
COSME	122	Elements of Thermo-Flat Celled Practical	3
COSME	123	Elements of Design Practical	4
COSME	124	Skin Care and Hair Removal Theory	4
COSME	125	Skin Care and Hair Removal Practical	3
COSME	130	Advance Skin Care and Hair Removal Practical	1
COSME	131	Hair and Scalp Theory	3
COSME	132	Hair and Scalp Practical	4
COSME	133	Hair Cutting Theory	3
COSME	134	Basics of Hair Cutting Practical	4
COSME	135	Intermediate of Hair Cutting Practical	2
COSME	136	Advance of Hair Cutting Practical	2
COSME	140	Hair Style Basics Theory	4
COSME	141	Basic Hair Forms Practical	4
COSME	142	Permanents Theory	4
COSME	143	Permanents Technique Practical	4
COSME	144	Perms Practical	4
COSME	145	Soft Curl Perm Practical	2
COSME	150	Chemical Hair Relaxing Theory	2
COSME	151	Chemical Hair Relaxing Practical	4
COSME	152	Hair Coloring and Bleaching Theory	4
COSME	153	Hair Coloring Practical	3
COSME	154	Bleaching Practical	3
COSME	155	Artificial Hair Services Theory	2
COSME	156	Artificial Hair Services Practical	2
COSME	157	State Board Practical Preparation	1
COSME	158	State Board Test Review	1

Certificate of Competency: 119 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
REQUIRED COURSEWORK			CREDITS
COSME	101	Sanitation Practices	2
COSME	102	Math for Cosmetologists	1
COSME	103	Safety and First Aid	1
COSME	104	State Law	4
COSME	105	The Salon Operation of a Business Theory	2
COSME	106	Salon Operation Management	4
COSME	107	Shampooing, Rinsing, And Conditioning Theory	2
COSME	108	Shampooing, Rinsing, And Conditioning Practical	2
COSME	109	Manicure/Pedicure Theory	3
COSME	110	Beginning Manicures/Pedicure Practical	1
COSME	120	Manicures/Pedicure Practical	1
COSME	121	Elements of Thermo-Round Celled Practical	4
COSME	122	Elements of Thermo-Flat Celled Practical	3
COSME	123	Elements of Design Practical	4
COSME	124	Skin Care and Hair Removal Theory	4
COSME	125	Skin Care and Hair Removal Practical	3
COSME	130	Advance Skin Care and Hair Removal Practical	1
COSME	131	Hair and Scalp Theory	3
COSME	132	Hair and Scalp Practical	4
COSME	133	Hair Cutting Theory	3
COSME	134	Basics of Hair Cutting Practical	4
COSME	135	Intermediate of Hair Cutting Practical	2
COSME	136	Advance of Hair Cutting Practical	2
COSME	140	Hair Style Basics Theory	4
COSME	141	Basic Hair Forms Practical	4
COSME	142	Permanents Theory	4
COSME	143	Permanents Technique Practical	4
COSME	144	Perms Practical	4
COSME	145	Soft Curl Perm Practical	2
COSME	150	Chemical Hair Relaxing Theory	2
COSME	151	Chemical Hair Relaxing Practical	4
COSME	152	Hair Coloring and Bleaching Theory	4
COSME	153	Hair Coloring Practical	3
COSME	154	Bleaching Practical	3
COSME	155	Artificial Hair Services Theory	2
COSME	156	Artificial Hair Services Practical	2
COSME	157	State Board Practical Preparation	1
COSME	158	State Board Test Review	1

Culinary Arts

Students prepare for a variety of careers in the culinary arts profession and for advanced education at other culinary institutions. Career paths include dinner cook, institutional cook, cook's helper, baker's helper, fry cook, and short order cook. Students work in all aspects of the dining facilities on campus, planning and preparing meals and catering banquet functions. Instruction includes food planning and preparation, and serving and cleanup. Graduates receive a broad base of skills and are well prepared for a variety of entry-level culinary jobs.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Michael Clark, 253.680.7447, mclark@bates.ctc.edu

Roger Knapp, 253.680.7247, rknapp@bates.ctc.edu

Associate of Technology Degree: 120 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
CARTS	101	Introduction to Culinary Arts	2
CARTS	102	Sanitation and Food Safety	2
CARTS	103	Product Identification	2
CARTS	104	Breakfast Service	2
CARTS	105	Fundamentals of Cooking I	4
CARTS	106	Cooking Applications I	4
CARTS	107	Fundamentals of Table Service I	3
CARTS	108	Garde Manger I	1
CARTS	109	Food Service Mathematics	2
CARTS	110	Fundamentals of Cooking II	4
CARTS	111	Cooking Applications II	5
CARTS	112	Customer Service	3
CARTS	113	Introduction to Baking	5
CARTS	114	Cost Control	2
CARTS	115	Food and Beverage Service	3
CARTS	116	Menu Development	2
CARTS	117	Advanced Cooking Techniques	5
CARTS	118	Introduction to Catering and Banquets	4
CARTS	201	Meats and Seafood	3
CARTS	202	Global Food and Nutrition Issues	2
CARTS	203	Ice Carving	1
CARTS	204	Garde Manger II	2
CARTS	205	Restaurant Desserts	5
CARTS	206	Techniques of Restaurant Cooking	4
CARTS	207	Catering and Banquets	4
CARTS	208	Regional Cuisine Service	3
CARTS	209	International Cuisine Service	3
CARTS	210	Introduction to Management	3
CARTS	211	Classical Cuisine	4
CARTS	212	Chef's Table Service	5
CARTS	213	Cooking Applications III	5
CARTS	214	Employment Preparation	2
CARTS	215	Wine/Spirits	4

Certificate of Competency: 66 Credits

CULINARY ARTS LINE COOK			CREDITS
GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
REQUIRED COURSEWORK			CREDITS
CARTS	101	Introduction to Culinary Arts	2
CARTS	102	Sanitation and Food Safety	2
CARTS	103	Product Identification	2
CARTS	104	Breakfast Service	2
CARTS	105	Fundamentals of Cooking I	4
CARTS	106	Cooking Applications I	4
CARTS	107	Fundamentals of Table Service I	3
CARTS	108	Garde Manger I	1
CARTS	109	Food Service Mathematics	2
CARTS	110	Fundamentals of Cooking II	4
CARTS	111	Cooking Applications II	5
CARTS	112	Customer Service	3
CARTS	113	Introduction to Baking	5
CARTS	114	Cost Control	2
CARTS	115	Food and Beverage Service	3
CARTS	116	Menu Development	2
CARTS	117	Advanced Cooking Techniques	5

Database Technology

From retail to financial services, healthcare to automotive, today's businesses are computer and information-driven, making database developers an important position in most industries. Database developers organize and manage information to corporations and organizations large and small. Students acquire computer and software development skills and prepare for high-demand Oracle certifications. Career opportunities can include data analyst, database administrator, database application developer, database resource specialist and help desk analyst. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Judith Graham, 253.680.7335, jagraham@bates.ctc.edu
www.bates.ctc.edu/Database

Associate of Applied Science - Transfer Degree: 115 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH	104	Statistical Analysis or equivalent	5
MATH	105	College Algebra or equivalent	5
ENGL&	101	College Composition	5
100+	Level	Social Sciences (Sociology or Psych)	5
100+	Level	Humanities (Am. Sign Language, Art, or History)	5

Associate of Technology Degree: 110 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	10

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL	5
DATA	103	Operating Systems	5
SOFT	101	Computer Concepts	5
SOFT	102	Programming Fundamentals	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5
DATA	201	PL/SQL	5
DATA	202	Database Fundamentals I	5
DATA	203	Database Fundamentals II	5
DATA	204	Database Fundamentals III	5
DATA	208	SQL Server Admin	5
CS&	141	Computer Science I – JAVA	5
SOFT	142	Programming in JAVA II	5
SOFT	207	Dynamic Web Pages	5
DATA	290	Capstone Project	5

Certificate of Competency: 60 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL	5
DATA	103	Operating Systems	5
DATA	201	PL/SQL	5
DATA	202	Database Fundamentals I	5
DATA	203	Database Fundamentals II	5
DATA	204	Database Fundamentals III	5
SOFT	101	Computer Concepts	5
WEB	101	Microsoft Office Applications	5

Dental Assisting

Students prepare for careers as chair side dental assistants, dental office managers, and infection control specialists. The program is designed in accordance with American Dental Association guidelines and is fully accredited by the Commission on Dental Accreditation. After completing industry-specific competencies, students may take the Dental Assisting national board examination to earn nationally recognized credentials as a certified dental assistant. Note: General education requirements must be taken 1) prior to entering the program or, 2) before or after the regularly schedule dental assisting coursework.

Prerequisites:

1. High School diploma or GED
2. Minimum age for program entry: 18 years of age
3. A Washington State Patrol background check clearance
4. Documentary evidence of current immunizations and medical insurance within 1 month of program start date
5. Documentary evidence of current Red Cross or American Heart Association approved First Aid/CPR card within 1 month of program start date
6. Must meet pre-determined COMPASS levels in reading and writing

Enrollment Dates: Varies; check with advisor

Program Length: Four quarters (approximate)

FACULTY

Teri Amundsen, 253.680.7309, tamundsen@bates.ctc.edu

Flossie Hollie, 253.680.7308, fhollie@bates.ctc.edu

Patty Reno, 253.680.7307, preno@bates.ctc.edu

www.bates.ctc.edu/DentalAssisting

Certificate of Competency: 88 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5

REQUIRED COURSEWORK			CREDITS
DNTA	110	Introduction to Dental Assisting	2
DNTA	111	Infection Control	5
DNTA	112	Biomedical Sciences	5
DNTA	113	Dental Sciences I	3
DNTA	120	Introduction to Chairside Assisting	4
DNTA	121	Chairside Assisting I	4
DNTA	122	Dental Materials I	3
DNTA	124	HIV/AIDS Training	1
DNTA	129	Dental Sciences II	2
DNTA	130	Dental Sciences III	3
DNTA	131	Chairside Assisting II	3
DNTA	132	Chairside Assisting III	2
DNTA	133	Chairside Assisting IV	2
DNTA	140	Restorative Services I	3
DNTA	141	Restorative Services II	2
DNTA	142	Restorative Services III	2
DNTA	143	Dental Materials II	2
DNTA	144	Dental Radiology	5
DNTA	145	Chairside Assisting V	3
DNTA	150	Dental Sciences IV	3
DNTA	151	Clinical Experience I	5
DNTA	152	Dental Materials III	4
DNTA	160	Clinical Experience II	5
DNTA	161	Dental Office Administration	5

Associate of Technology Degree: 93 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DNTA	110	Introduction to Dental Assisting	2
DNTA	111	Infection Control	5
DNTA	112	Biomedical Sciences	5
DNTA	113	Dental Sciences I	3
DNTA	120	Introduction to Chairside Assisting	4
DNTA	121	Chairside Assisting I	4
DNTA	122	Dental Materials I	3
DNTA	124	HIV/AIDS Training	1
DNTA	129	Dental Sciences II	2
DNTA	130	Dental Sciences III	3
DNTA	131	Chairside Assisting II	3
DNTA	132	Chairside Assisting III	2
DNTA	133	Chairside Assisting IV	2
DNTA	140	Restorative Services I	3
DNTA	141	Restorative Services II	2
DNTA	142	Restorative Services III	2
DNTA	143	Dental Materials II	2
DNTA	144	Dental Radiology	5
DNTA	145	Chairside Assisting V	3
DNTA	150	Dental Sciences IV	3
DNTA	151	Clinical Experience I	5
DNTA	152	Dental Materials III	4
DNTA	160	Clinical Experience II	5
DNTA	161	Dental Office Administration	5

Dental Lab Technician

Students prepare for employment in dental laboratories, fabricating orthodontic appliances, complete and partial dentures, and gold or porcelain crowns and bridges. The curriculum complies with American Dental Association guidelines and is the only fully accredited ADA dental lab technician program in Washington State. Instructors of this program are certified dental technicians.

Prerequisites:

1. A high school diploma or GED.
2. Applicants must be fully ready to enter into general education courses. This entry requirement may be satisfied by providing the registrar with official transcripts showing completion of general education courses, or by satisfactory completion of placement tests that enable the student to enroll directly into required general education courses.
3. Applicants must take and pass an evaluation of hand-eye coordination techniques and demonstrate their ability to visualize three-dimensional forms.

Enrollment Dates: Fall and spring quarters

Program Length: Eight quarters (approximate)

FACULTY

Robert Holmes, Jr., 253.680.7313, rholmes@bates.ctc.edu
 Kristina Merriman, 253.680.7312, kmerriman@bates.ctc.edu
www.bates.ctc.edu/DentalLab

Associate of Technology Degree: 120 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
100+ Level	Human Relations	5
100+ Level	Communications	5
100+ Level	Mathematics	5
REQUIRED COURSEWORK		CREDITS
DENLB 101	Introduction to Dental Lab Technology	2
DENLB 102	Health and Safety	2
DENLB 103	Dental Anatomy	3
DENLB 104	Dental Materials	2
DENLB 105	Dentures – Casts/Trays/Rims	4
DENLB 106	Denture Setup	3
DENLB 107	Denture Processes	3
DENLB 108	Immediate Dentures	2
DENLB 109	Denture Repair	2
DENLB 110	Esthetic Arrangement	3
DENLB 111	Introduction to Orthodontics	2
DENLB 112	Orthodontic Appliances – Fixed	3
DENLB 113	Orthodontic Appliances – Removable	3
DENLB 114	Introduction to Removable Prosthetic Devices (RPD)	2
DENLB 120	RPD Survey and Design	2
DENLB 121	Refractory Cast Production	2
DENLB 122	Wax Pattern Construction	3
DENLB 123	RPD Processes	3
DENLB 124	Frame Construction	2
DENLB 201	Plaster Carving	5
DENLB 202	Dental Materials II	2
DENLB 203	Coping Fabrication I	5
DENLB 204	Introduction to Gold Crowns	2
DENLB 205	Gold Crown Waxing	5
DENLB 206	Gold Crown Techniques	5
DENLB 207	Introduction to Porcelain	5
DENLB 208	Coping Fabrication II	5

DENLB 209	Stack Porcelain	5
DENLB 211	Porcelain Techniques	4
DENLB 212	Advanced Porcelain Techniques	4
DENLB 213	Advanced Technologies	4
	or	
DENLB 296	Work-based Learning Seminar and	1
DENLB 297	Work-based Learning Experience	3
	or	
DENLB 298	Work-based Learning Experience – No seminar	4

Students may chose one of the following (3 credits):

DENLB 125	Advanced Dentures or	3
DENLB 126	Advanced Orthodontics or	3
DENLB 127	Advanced RPDs	3

Students may chose one of the following (3 credits):

DENLB 214	Advanced Crown and Bridge or	3
DENLB 215	Advanced Dental Ceramics	3

Certificate of Competency: 63 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
90+ Level	Human Relations	5
90+ Level	Communications	5
90+ Level	Mathematics	5

REQUIRED COURSEWORK		CREDITS
DENLB 101	Introduction to Dental Lab Technology	2
DENLB 102	Health and Safety	2
DENLB 103	Dental Anatomy	3
DENLB 104	Dental Materials	2
DENLB 105	Dentures – Casts/Trays/Rims	4
DENLB 106	Denture Setup	3
DENLB 107	Denture Processes	3
DENLB 108	Immediate Dentures	2
DENLB 109	Denture Repair	2
DENLB 110	Esthetic Arrangement	3
DENLB 111	Introduction to Orthodontics	2
DENLB 112	Orthodontic Appliances – Fixed	3
DENLB 113	Orthodontic Appliances – Removable	3
DENLB 114	Introduction to Removable Prosthetic Devices (RPD)	2
DENLB 120	RPD Survey and Design	2
DENLB 121	Refractory Cast Production	2
DENLB 122	Wax Pattern Construction	3
DENLB 123	RPD Processes	3
DENLB 124	Frame Construction	2

Denturist

Bates Technical College is the only college in Washington State to offer a denturist training program. Denturists are licensed specialists who make, fit, and repair complete and partial dentures. In order to meet the requirements of the denturist profession, candidates must obtain training at an accredited college to qualify to sit for the Washington, Oregon, Idaho, Montana, or Arizona denturist's license examination. Instruction includes anatomy, physiology, microbiology, ethics, medical emergencies, office management, and clinical/laboratory techniques as they apply to denture practices. Students receive clinical experience in the on-campus denturist clinic which provides services to the public. New students may enter the program at the beginning of fall and spring quarters.

Prerequisites:

1. A high school diploma or GED.
2. Applicants must be fully ready to enter into general education courses. This entry requirement may be satisfied by providing the registrar with official transcripts showing actual completion of general education courses, or by satisfactory completion of placement tests that enable the student to enroll directly into required general education courses.
3. Applicants must take and pass aptitude tests measuring dexterity and the ability to visualize three-dimensional forms.
4. Personal interview with instructor.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Kenneth Kais, 253.680.7314, kkais@bates.ctc.edu

Associate of Technology Degree: 120 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DNTU	101	Asepsis, Infection, Hazard Control	2
DNTU	102	Biological Concepts	3
DNTU	103	Introduction to Complete Denture Prosthodontics	3
DNTU	104	Baseplates and Occlusion Rims	2
DNTU	105	Tooth Selection and Set I	3
DNTU	106	Dental Materials I	2
DNTU	107	Denture Techniques	2
DNTU	108	Complete Denture Fabrication I	2
DNTU	109	Dental Office Management I	1
DNTU	110	Head Anatomy and Physiology I	2
DNTU	111	Tooth Selection and Set II	1
DNTU	112	Medical Emergencies	3
DNTU	113	Denture Techniques II	2
DNTU	114	Complete Denture Fabrication II	1
DNTU	115	Partial Dental Casts	2
DNTU	116	Framework Design - RPD	3
DNTU	117	Dental Office Management II	2
DNTU	118	Clinical Denture Procedures I	2
DNTU	119	Dental Impressions Procedures I	2
DNTU	120	Head Anatomy and Physiology II	3
DNTU	121	Tooth Selection and Set III	1
DNTU	122	Complete Denture Fabrication III	2
DNTU	123	Complete Denture Repair I	2
DNTU	124	Casts - Partial	2
DNTU	125	Oral Pathology	2
DNTU	126	Clinical Denture Procedures II	2

DNTU	127	Dental Impressions Procedures II	2
DNTU	128	Fabrication Clinical I	1
DNTU	129	Polish Methods – RDP Frames	1
DNTU	130	Acrylic Prosthesis Repair	2
DNTU	131	Wax Patterns - Partial	4
DNTU	132	Teeth Arrangement - RPD	2
DNTU	133	Finish Methods - RPD	3
DNTU	134	RPD Frames Fabrication	2
DNTU	135	Oral Pathology II	3
DNTU	136	Clinical Denture Procedures III	2
DNTU	137	Tooth Selection/Evaluation	2
DNTU	138	Fabrication Clinical II	2
DNTU	201	Complete Denture Repair II	2
DNTU	202	Dental Materials – RPD	2
DNTU	203	RPD Repair Methods	3
DNTU	204	Dental Office Management III	2
DNTU	205	Denture Adjustments	1
DNTU	206	Ethics and Jurisprudence	1
DNTU	207	Malocclusions	2
DNTU	208	Clinical Denture Procedures IV	2
DNTU	209	Dental Materials II	2
DNTU	210	Geriatric Patient Needs	1
DNTU	211	Fabrication Clinical III	2
DNTU	212	Alternative RPD Systems	2
DNTU	213	Implant and Precision Attachments	1
DNTU	214	Advanced Special Services	1
DNTU	215	Advanced Dental Appliances	1

Diesel & Heavy Equipment Mechanic

Students prepare for employment in the diesel and heavy equipment industry, diagnosing, repairing, and rebuilding components of diesel-powered vehicles in an on-campus shop setting. Local industry training partnerships provide practical experience that enhances student instruction. Graduates may find employment as technicians in diesel and heavy duty apprenticeships, working with on/off highway trucks, construction equipment, hydraulics, material handling equipment, agricultural equipment, marine, and utilities.

Enrollment Dates: Every quarter including summer
Program Length: Seven quarters (approximate)

FACULTY

Bryce Carpenter, 253.680.7437, bcarpenter@bates.ctc.edu
Gene Gablehouse, 253.680.7438, ggablehouse@bates.ctc.edu
Mick McGuire, 253.680.7436, mmcguire@bates.ctc.edu
Ray Shjerven, 253.680.7435, rshjerven@bates.ctc.edu

Associate of Technology Degree: 106 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DIESL	103	Introduction to Hydraulic Systems	5
DIESL	104	Diagnosis and Testing of Hydraulic Systems	2
DIESL	105	Introduction to Diesel Technology	1
DIESL	106	Engine Construction	5
DIESL	107	Engine Systems	1
DIESL	108	Engine Reassembly	4
DIESL	109	Fuel Systems	2
DIESL	110	Introduction to Air Brakes	2
DIESL	111	Introduction to Basic Electrical Systems	4
DIESL	112	Electrical Systems Application	4
DIESL	113	Electronic Engine Systems	3
DIESL	114	Mobile Air Conditioning Systems	3
DIESL	115	Introduction to Power Trains	1
DIESL	116	Manual Transmission Service	3
DIESL	117	Automated Manual Transmission Service	2
DIESL	118	Clutch Service	2
DIESL	119	Automatic Transmission Service	2
DIESL	120	Driveline Service	1
DIESL	121	Differentials/ Final Drive	2
DIESL	122	Wheel End Service	1
DIESL	201	Basic Vehicle Service	11
DIESL	203	Advanced Service Applications	5
DIESL	204	Employment Preparation	2
DIESL	205	Advanced Service Techniques *	15
WBAS	101	Welding Basics	8

* This course may be substituted with a work-based learning component.

Certificate of Competency: 45 Credits

DIESEL SERVICE HELPER GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DIESL	103	Introduction to Hydraulic Systems	5
DIESL	104	Diagnosis and Testing of Hydraulic Systems	2
DIESL	105	Introduction to Diesel Technology	1
DIESL	106	Engine Construction	5
DIESL	107	Engine Systems	1
DIESL	108	Engine Reassembly	4
DIESL	109	Fuel Systems	2
DIESL	110	Introduction to Air Brakes	2
DIESL	111	Introduction to Basic Electrical Systems	4
DIESL	112	Electrical Systems Application	4

Certificate of Training: 14 Credits

ELECTRICAL REQUIRED COURSEWORK			CREDITS
DIESL	111	Introduction to Basic Electrical Systems	4
DIESL	112	Electrical Systems Application	4
DIESL	113	Electronic Engine Systems	3
DIESL	114	Mobile Air Conditioning Systems	3

Certificate of Training: 15 Credits

ENGINES REQUIRED COURSEWORK			CREDITS
DIESL	105	Introduction to Diesel Technology	1
DIESL	106	Engine Construction	5
DIESL	107	Engine Systems	1
DIESL	108	Engine Reassembly	4
DIESL	109	Fuel Systems	2
DIESL	110	Introduction to Air Brakes	2

Certificate of Training: 8 Credits

HYDRAULICS AND PNEUMATICS REQUIRED COURSEWORK			CREDITS
DIESL	103	Introduction to Hydraulic Systems	5
DIESL	104	Diagnosis and Testing of Hydraulic Systems	2
DIESL	105	Introduction to Diesel Technology	1

Certificate of Training: 6 Credits

BRAKE SYSTEMS REQUIRED COURSEWORK			CREDITS
DIESL	110	Introduction to Air Brakes	2
DIESL	111	Introduction to Basic Electrical Systems	4

Certificate of Training: 21 Credits

LUBE TECHNICIANS REQUIRED COURSEWORK			CREDITS
DIESL	103	Introduction to Hydraulic Systems	5
DIESL	201	Basic Vehicle Service	11
DIESL	203	Advanced Service Applications	5

Certificate of Training: 15 Credits

POWER TRAINS REQUIRED COURSEWORK			CREDITS
DIESL	105	Introduction to Diesel Technology	1
DIESL	115	Introduction to Power Trains	1
DIESL	116	Manual Transmission Service	3
DIESL	117	Automated Manual Transmission Service	2
DIESL	118	Clutch Service	2
DIESL	119	Automatic Transmission Service	2
DIESL	120	Driveline Service	1
DIESL	121	Differentials/ Final Drive	2
DIESL	122	Wheel End Service	1

Digital Media

Digital media is a key component in film, television, video and website production, and encompasses a variety of projects, from filming and editing to digital animation and computer games. The constant implementation of new technology makes this a fast-moving field, a good fit for the student who seeks a career in a visual medium with leading-edge technology. Instruction includes production and editing software and the opportunity to achieve practical experience working on a variety of studio projects. Employment opportunities for digital media professionals include work as creative services editors, video editors and graphics editors for production studios, film companies, web design companies, advertising and multimedia companies. The program also provides extended learning opportunities for persons previously or currently employed in the industry.

Enrollment Dates: Every quarter including summer

Program Length: Four quarters (approximate)

FACULTY

Brian Parker, 253.680.7746, bparker@bates.ctc.edu
www.bates.ctc.edu/DigitalMedia

Certificate of Competency: 87 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DIGIT	101	Digital Imaging	2
DIGIT	102	Image Editing	5
DIGIT	103	Graphic Generation I	5
DIGIT	104	Introduction to Computers	5
DIGIT	120	Introduction to Digital Media Concepts	4
DIGIT	121	Production Process I	5
DIGIT	122	Production Process II	4
DIGIT	123	Production Process III	4
DIGIT	130	Production Editing I	3
DIGIT	131	Production Editing II	3
DIGIT	132	Digital Media – Video	5
DIGIT	133	Advanced Editing Project	5
DIGIT	140	Copyright and Ethics	2
DIGIT	141	Desktop Presentations I	5
DIGIT	142	Desktop Presentations II	5
DIGIT	143	Digital Media – Animation	5
DIGIT	145	Digital Media – Audio	5

Early Childhood Education/ Child Care

The associate in applied science – transfer degree includes technical courses required for job preparation but also includes a college-level general education component so that students may prepare for employment or to transfer to a four-year university. Curriculum is based on core competencies outlined by the Washington State Child Care Coordinating Committee and the nationally-recognized Child Development Associate credential. First-year instruction provides students with skills to work as entry-level child care/early education teachers. Second-year students prepare to become lead teachers, program supervisors and directors. Note: In support of working child care professionals who already have a Child Development Associate (CDA) or a first-year certificate of training, Bates offers 200-level Child Care/Early Education during a convenient evening timeframe. Prospective students should contact the program instructor for current and upcoming course offerings and schedules throughout the year.

Enrollment Dates: Fall and spring quarters
Program Length: Six quarters (approximate)

FACULTY

Laurie O'Neill, 253.680.7322, loneill@bates.ctc.edu
www.bates.ctc.edu/ChildCareEarlyEducation

Associate of Applied Science - Transfer Degree: 105 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
CMST&	220	Public Speaking	5
ENGL&	101	English Composition I	5
MATH&	141	Pre-calculus I	5
PSYC&	100	General Psychology	5
	100+	Social Science/Humanities Elective	5

REQUIRED COURSEWORK			CREDITS
ECE	101	Introduction to Child Care / Early Education or	5 0
ECE	102	Early Education and	3
ECE	103	STARS	2
ECE	104	Learning Environments	5
ECE	105	Early Childhood Lab I*	2
ECE	106	Growth, Development and Learning	4
ECE	107	Physical Development	4
ECE	108	Emotional and Social Development	5
ECE	109	Child Guidance	5
ECE	110	Cognitive Development	5
ECE	111	Early Childhood Lab II*	2
ECE	201	Issues in Child Care / Early Education	5
ECE	202	Children with Special Needs	5
ECE	203	Observation and Assessment	4
ECE	204	Early Childhood Lab III*	2
ECE	205	Instructional Strategies	5
ECE	206	Curriculum Development	5
ECE	207	Professionalism	5
ECE	208	Family Dynamics	5
ECE	209	Program Management	5
ECE	210	Early Childhood Lab IV*	2

EARLY CHILDHOOD EDUCATION/CHILD CARE

Students prepare for careers in child care and early education for such positions as child care director, child care teacher, and teacher assistants. Curriculum is based on core competencies outlined by the Washington State Child Care Coordinating Committee and the nationally-recognized Child Development Associate credential. First-year instruction provides students with skills to work as entry-level child care/early education teachers. Second-year students prepare to become lead teachers, program supervisors and directors.

NOTE: In support of working child care professionals who already have a Child Development Associate (CDA) or a first-year certificate of training, Bates offers 200-level Child Care/Early Education during a convenient evening timeframe. Prospective students should contact the program instructor for current and upcoming course offerings and schedules throughout the year.

Associate of Technology Degree: 95 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ECE	101	Introduction to Child Care / Early Education or	5 0
ECE	102	Early Education and	3
ECE	103	STARS	2
ECE	104	Learning Environments	5
ECE	105	Early Childhood Lab I	2
ECE	106	Growth, Development and Learning	4
ECE	107	Physical Development	4
ECE	108	Emotional and Social Development	5
ECE	109	Child Guidance	5
ECE	110	Cognitive Development	5
ECE	111	Early Childhood Lab II*	2
ECE	201	Issues in Child Care / Early Education	5
ECE	202	Children with Special Needs	5
ECE	203	Observation and Assessment	4
ECE	204	Early Childhood Lab III*	2
ECE	205	Instructional Strategies	5
ECE	206	Curriculum Development	5
ECE	207	Professionalism	5
ECE	208	Family Dynamics	5
ECE	209	Program Management	5
ECE	210	Early Childhood Lab IV*	2

Certificate of Competency: 55 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ECE	101	Introduction to Child Care / Early Education or	5 5
ECE	102	Early Education and	3
ECE	103	STARS	2
ECE	104	Learning Environments	5
ECE	105	Early Childhood Lab I*	2
ECE	106	Growth, Development and Learning	4
ECE	107	Physical Development	4
ECE	108	Emotional and Social Development	5
ECE	109	Child Guidance	5
ECE	110	Cognitive Development	5
ECE	112	Healthy Environments for Children	5

Electrical Construction

Full-time day and swing shift programs are available for students seeking to earn a degree or certificate in electrical construction for jobs in commercial and residential construction, public utility agencies, and industrial construction and maintenance. The program also provides extended learning opportunities for persons previously or currently employed in these and related occupations. Students interested in receiving an ELO1 license should consult with career advisors to ensure enrollment in the appropriate program.

Enrollment Dates: Fall and spring quarters

Program Length: Eight quarters (approximate)

FACULTY

Dave Leenhouts, 253.680.7433, dleenhouts@bates.ctc.edu

Jeff Llapitan, 253.680.7434, jllapitan@bates.ctc.edu

Associate of Technology Degree: 120-158 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ELCON	101	Introduction to Electrical Construction	3
ELCON	102	Applied Physical Science	5
ELCON	103	Hand and Power Tools	4
ELCON	104	Electrical Service Installation	4
ELCON	105	Electrical Components	4
ELCON	106	Introduction to Residential Wiring	3
ELCON	107	National Electric Code	4
ELCON	108	NFPA 70E Standard	4
ELCON	109	Residential Design	3
ELCON	110	Residential Wiring Techniques	3
ELCON	111	Systems Troubleshooting	3
ELCON	112	Introduction to Blueprint Reading	3
ELCON	113	Blueprint Reading Applications	5
WBAS	101	Welding Basics	8
ELCON	201	Specialty Tools	4
ELCON	202	Commercial Wiring	3
ELCON	203	Commercial Codes and Regulations	3
ELCON	204	Commercial Material Identification	3
ELCON	205	Commercial Installation	3
ELCON	206	Industrial Wiring	3
ELCON	207	Industrial Material Identification	3
ELCON	208	Industrial Installation	3
ELCON	209	Industrial Hazards	3
ELCON	210	Motors and Controllers	4
ELCON	211	Project Estimation	5
ELCON	212	Control Circuits	3
ELCON	213	Motors and Controllers Applications	3
ELCON	214	Transformers	3
ELCON	215	Advanced Motor Controls	3
ELCON	220	Advanced Projects I *	10
ELCON	221	Advanced Projects II *	10
ELCON	222	Advanced Projects III *	10
ELCON	223	Advanced Projects IV*	10

*These courses are available for students who need additional hours in order to meet licensing requirements.

Certificate of Competency: 67 Credits

RESIDENTIAL ELECTRICIAN			CREDITS
GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
REQUIRED COURSEWORK			CREDITS
ELCON	101	INTRODUCTION TO ELECTRICAL CONSTRUCTION	3
ELCON	102	APPLIED PHYSICAL SCIENCE	5
ELCON	103	HAND AND POWER TOOLS	4
ELCON	104	ELECTRICAL SERVICE INSTALLATION	4
ELCON	105	ELECTRICAL COMPONENTS	4
ELCON	106	INTRODUCTION TO RESIDENTIAL WIRING	3
ELCON	107	NATIONAL ELECTRIC CODE	4
ELCON	108	NFPA 70E STANDARD	4
ELCON	109	RESIDENTIAL DESIGN	3
ELCON	110	RESIDENTIAL WIRING TECHNIQUES	3
ELCON	111	SYSTEMS TROUBLESHOOTING	3
ELCON	112	INTRODUCTION TO BLUEPRINT READING	3
ELCON	113	BLUEPRINT READING APPLICATIONS	5
ELCON	201	SPECIALTY TOOLS	4

ELECTRICAL CONSTRUCTION - Licensure Eligibility

This is a career training program that prepares students to apply to the Southwest Washington Electrical Joint Apprenticeship Training Committee, an organization affiliated with the International Brotherhood of Electrical Workers Local #76. Upon completion of the 3000 hours of instruction, students will be given 4000 hours that will apply toward the ELOA1 license.

Electrical Engineering Technician

Bates offers the only program in the region in which students prepare for careers in electrical code application, interior and exterior lighting design, and all aspects of electrical design. Instruction includes all phases of electrical engineering, CAD drafting, and design for commercial buildings. Technician's design and draft electrical power, signal, interior, and exterior lighting systems. They also assist in specification writing and share in on-site construction supervision. Students in this program are encouraged to take the National Institute for Certification in Engineering Technologies (NICET) examinations and seek certification as electrical engineering technicians.

Enrollment Dates: Fall and spring quarters

Program Length: Eight quarters (approximate)

FACULTY

Stan Reed, 253.680.7342, sreed@bates.ctc.edu

Associate of Technology Degree: 120 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ETRIC	110	Applied Communications	3
ETRIC	111	Fundamentals of Drafting	2
ETRIC	112	Electrical Math Fundamentals	2
ETRIC	113	Electrical Math	3
ETRIC	114	Fundamentals of Electricity	2
ETRIC	115	Applied Electrical Math	5
ETRIC	124	Drafting Applications	3
ETRIC	125	Engineering Drafting	3
ETRIC	126	Electrical Principles	3
ETRIC	127	Applied Electrical Principles	5
ETRIC	130	Technical Communications	4
ETRIC	131	Applied Physics	2
ETRIC	132	CAD Fundamentals	2
ETRIC	134	Elements of Physics	2
ETRIC	140	Intermediate CAD	3
ETRIC	141	National Electrical Code	3
ETRIC	142	Codes Applications I	3
ETRIC	143	Fundamentals of Power Systems	3
ETRIC	201	Fundamentals of Lighting Systems	4
ETRIC	202	Fundamentals of Low-Voltage Systems	3
ETRIC	203	Fundamentals of High-Voltage Systems	4
ETRIC	204	Essentials of Electrical Systems Design	3
ETRIC	225	Advanced CAD Operations	3
ETRIC	226	Electrical System Design Applications	3
ETRIC	227	Introduction to Commercial Electrical Systems	4
ETRIC	234	CAD Design Applications	3
ETRIC	235	Codes Applications II	4
ETRIC	230	Intermediate Electrical System Design	4
ETRIC	240	Commercial Electrical Design Applications	4
ETRIC	241	Advanced Electrical System Design	4
ETRIC	242	Fundamentals of Cost Estimating	2
ETRIC	243	Construction Cost Estimating	3
ETRIC	244	Construction Specifications	4

Electrical Power & Process Automation/Electronics Technician

The Electrical Power and Process Automation/Electronics Technician program prepares students for apprenticeships with electric utilities by offering both a one-year Electrical Technician certificate and a two-year Industrial Technology degree. The program features equipment and software from industry leaders such as Allen Bradley, Rockwell Automation, FANUC Robotics, Bosch, Siemens, Famic Technologies, and National Instruments. The automation portion of the program focuses on the intelligent control of machines and processes using programmable logic controllers (PLCs), embedded controllers, variable frequency drives (VFDs), industrial networks, sensors & transducers, instrumentation and robotics. The electrical curriculum is based on guidelines from the National Joint Apprenticeship Training Committee (NJATC) for electrical trades. The program also offers in-depth career training for those interested in becoming an electronics technician in the manufacturing, scientific, aerospace, or civilian military industries.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Tom Newman, 253.680.7350, tnewman@bates.ctc.edu

Associate of Technology Degree: 117 - 119 Credits

GENERAL EDUCATION REQUIREMENTS CREDITS

100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK CREDITS

ELPP	110	Electricity and Magnetism	2
ELPP	115	DC Circuit Analysis	5
ELPP	118	Fluid Power	5
ELPP	120	Alternating Current	2
ELPP	125	AC Circuit Analysis	5
ELPP	128	Polyphase AC Power Generation & Distribution	5
ELPP	135	Mechanics	3
ELPP	140	Motors and Control Systems	5
ELPP	145	Construction Practices, The NEC, & UL Guides	5
ELPP	210	Digital Logic	4
ELPP	215	Programmable Logic Controllers	5
ELPP	225	Sensors and Transducers	3
ELPP	230	Programming Methodologies	2
ELPP	231	PLC Programming Projects	5
ELPP	255	Instrumentation	5
ELPP	254	Supervisory Control & Data Acquisition (SCADA)	3
ELPP	238	Embedded Controllers	5
ELPP	268	Industrial Networks	5

Electives* Student must choose six items from the electives list. 28-30

Certificate of Competency: 65-67 Credits

GENERAL EDUCATION REQUIREMENTS CREDITS

90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK CREDITS

ELPP	110	Electricity and Magnetism	2
ELPP	115	DC Circuit Analysis	5
ELPP	118	Fluid Power	5
ELPP	120	Alternating Current	2
ELPP	125	AC Circuit Analysis	5
ELPP	128	Polyphase AC Power Generation & Distribution	5
ELPP	135	Mechanics	3
ELPP	140	Motors and Control Systems	5
ELPP	145	Construction Practices, The NEC, & UL Guides	5

Electives* Students must choose three items from the electives list. 13-15

ELECTIVES LIST*

WIRE	120	Telecommunications Network Cable	5
WIRE	121	Fiber Optics	5
INFO	104	A+ Essentials ¹	4
INFO	105	A+ Practical ¹	4
ELPP	126	Analog Electronics	5
ELPP	240	Industrial Robotics ²	5
ELPP	241	FANUC Robotics Roboguide ²	5
ELPP	250	Independent Study	5
ELPP	251	Independent Study	5
ELPP	294	Work-based Learning Experience ³ and	3
ELPP	295	Work-based Learning Seminar	1
ELPP	296	Work-based Learning Experience ³ and	3
ELPP	297	Work-based Learning Seminar	1
ELPP	256	Alternative Energy	5
ELPP	257	AutoCAD Electrical	5
ELPP	258	Automation Studio	5
ELPP	259	Microsoft Robotics Studio	5
ELPP	260	Lego NXT Robotics	5
ELPP	261	Embedded Programming in C	5
ELPP	262	Wireless Sensor Networks	5

1. A+ Essentials and A+ Practical need to be taken as a pair of electives.

2. Industrial Robotics and FANUC Robotics Roboguide need to be taken as a pair of electives.

3. Work-based Learning 294/295 and Work-based Learning 296/297 must be taken as a pair of electives if accepted into an apprenticeship with The Bonneville Power Administration (BPA). The BPA requires that students remain enrolled in their career-training program for a minimum of 640 hours during transition; the electives may otherwise be taken independently.

Electronic Equipment Service Technician

Students prepare for careers in the electronic equipment service profession as technicians in a wide range of high tech industries, including broadcast audio, broadcast video, car audio, electronic service, medical equipment repair, office automation and video tape. Employment opportunities may also include mobile electronics installer and electronic assembler. Students acquire and hone service technician skills through extensive practice with live equipment, and prepare for industry certification as Certified Electronics Technicians, Mobile Electronics Certified Professionals, and Certified Broadcast Technologists. This program also provides extended learning opportunities for persons previously or currently employed in these and related occupations.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Art Cutting, 253.680.7252, acutting@bates.ctc.edu

Keith Hawkins, 253.680.7212, khawkins@bates.ctc.edu

www.bates.ctc.edu/EEST

Associate of Technology Degree: 91 Credits

GENERAL EDUCATION REQUIREMENTS

			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK

			CREDITS
EEST	101	Safety Principles	3
EEST	102	Applied Math	5
EEST	103	Electronics Principles I	5
EEST	104	DC Electronics	4
EEST	105	AC Electronics	5
EEST	106	Inductors and Capacitors	4
EEST	107	Electronics Principles II	5
EEST	108	Amplifiers and Transistors	4
EEST	109	Electronic Devices	2
EEST	110	Introduction to Programmable Logic Controllers	5
EEST	201	Electronic Principles - Automation	5
EEST	202	Antenna and Satellite Systems	3
EEST	203	Magnetic and Laser Media	3
EEST	204	RF Receivers and Audio Amps	4
EEST	205	Video Projection	1
EEST	206	Emerging Technologies	3
BMST	105	Testing Equipment	5
BMST	106	Soldering	2
BMST	107	Schematics	3
BMST	109	Applied Service I	3
BMST	110	Applied Service II	2

Electronics Engineering Technician

Students prepare for entry-level employment as technicians in the field of electronic engineering. Instruction includes computer-aided drafting (CAD), printed circuit board design, electronic packaging, solid state components, and digital and microprocessors. Students are encouraged to take the National Institute for Certification in Engineering Technologies (NICET) examinations and seek certification as electronic engineering technicians. Graduates are qualified to work with electronic engineers, consultants, manufacturers and research and development teams.

Enrollment Dates: Fall and spring quarters

Program Length: Seven quarters (approximate)

FACULTY

Stan Reed, 253.680.7342, sreed@bates.ctc.edu

Associate of Technology Degree: 117 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ETRON	110	Applied Communications	3
ETRON	111	Fundamentals of Drafting	4
ETRON	112	Electronic Math Fundamentals	3
ETRON	113	Math for Electronics	2
ETRON	114	Fundamentals of Electricity	2
ETRON	115	Elements of Physics	2
ETRON	116	Electronic Principles	3
ETRON	120	Technical Communications	4
ETRON	121	Engineering Drafting	3
ETRON	122	Applied Electronic Math	5
ETRON	123	CAD Fundamentals	2
ETRON	133	Intermediate CAD	3
ETRON	134	Applied Physics	2
ETRON	135	Applied Electronic Principles	5
ETRON	136	Semiconductors, Diodes, and Transistors	3
ETRON	143	Advanced CAD Operations	3
ETRON	144	Amplifiers in Electronics	4
ETRON	145	Principles of FETs, JFETs, and MOSFETs	3
ETRON	146	Thyristors, Frequency, Feedback, and Filters	4
ETRON	210	Oscillators, Timers, and Power Supplies	4
ETRON	211	Essentials of Number Systems	2
ETRON	212	Data Control, Flip-Flops, Counters, and Shift Registers	4
ETRON	213	Principles of Analog and Binary Interfacing	4
ETRON	221	Essentials of Drafting for Electronics	3
ETRON	222	Microprocessors, Memory, Software, and Hardware	3
ETRON	223	CAD Applications in Design	3
ETRON	224	Electronic Units, Materials, Computers, Components, and Standards	3
ETRON	230	Schematics and Diagrams	4
ETRON	231	Programmable Controllers	4
ETRON	232	Printed Circuit Boards	5
ETRON	233	Electronic Packaging	3

Electronics Technician

Successful completion of coursework in the electronics technician program qualifies graduates to use precision test equipment and hand tools to install, maintain, test, and repair electronic equipment for a broad range of careers, including manufacturing, communications, information technologies and computers, electronic security, avionics, and defense. Students also prepare for Certified Electronic Technician (CET) testing. Note: Completion of electronics technician coursework is required before entering other advanced technologies programs at Bates. All credits earned in the electronics technician program may be applied to fulfill elective requirements for a degree in an advanced technology program at Bates Technical College.

Enrollment Dates: Fall and spring quarters

Program Length: Two quarters (approximate)

FACULTY

David Skeen, 253.680.7352, dskeen@bates.ctc.edu

Certificate of Training: 30 Credits

REQUIRED COURSEWORK			CREDITS
ETECH	101	Introduction to Electronics	2
ETECH	102	DC Circuits	5
ETECH	103	AC Circuits	5
ETECH	104	Analog Circuits	5
ETECH	105	Digital Circuits	5
ETECH	106	Microcontrollers	5
ETECH	107	Employment Preparation	3

Facilities Maintenance Engineer

Students prepare for careers in the building care and maintenance industry, including boiler operator, building repairer, facilities maintenance engineer and custodian in industrial and office buildings, hotels, schools, and government agencies. Instruction includes electricity, welding, blueprint reading, machine maintenance, grounds keeping, appliance repair, boiler repair and operation, HVAC/R and advanced industry applications. Major elements of the program prepare students for Class V and Class IV boiler operator/ fireman certification. This is a pre-apprenticeship program for the Western Washington Operating Engineers Facilities Custodial Services Apprenticeship Committee and the Western Washington Stationary Engineers Apprenticeship Committee. The program also provides extended learning opportunities for persons previously or currently employed in these or other related professions.

Enrollment Dates: Every quarter including summer

Program Length: Six quarters (approximate)

FACULTY

Date Trombley, 253.680.7448, dtrombley@bates.ctc.edu

Associate of Technology Degree: 115 Credits

GENERAL EDUCATION REQUIREMENTS	CREDITS
100+ Level Human Relations	5
100+ Level Communications	5
100+ Level Mathematics	5

REQUIRED COURSEWORK	CREDITS
FACM 101 Safety Principles	2
FACM 102 Fundamentals of Electricity	3
FACM 103 Electrical Service	4
FACM 104 Introduction to Blueprint Reading	5
FACM 105 Engineering Drawings	4
FACM 106 Introduction to Hydraulics/Pneumatics	5
FACM 107 Machine Components	5
FACM 108 Mechanical and Machine Maintenance	5
FACM 109 Tools and Equipment	3
FACM 110 Introduction to Building Maintenance	2
FACM 111 Building Maintenance and Repair Methods	5
FACM 120 Custodial Services	4
FACM 121 Grounds Keeping	5
FACM 122 HVAC Systems	4
FACM 220 Remodeling	3
FACM 221 Small Business Planning	3
FACM 230 Computers in Industry	2
FACM 231 Computer Applications	4
FACM 140 Boiler Operations and Certification	12
FACM 141 Advanced Boiler Operations	4
FACM 142 Advanced Projects	8
WBAS 101 Welding Basics	8

Certificate of Competency: 83 Credits

BUILDING CARE AND MAINTENANCE GENERAL EDUCATION REQUIREMENTS	CREDITS
90+ Level Human Relations	5
90+ Level Communications	5
90+ Level Mathematics	5

REQUIRED COURSEWORK	CREDITS
FACM 101 Safety Principles	2
FACM 102 Fundamentals of Electricity	3
FACM 103 Electrical Service	4
FACM 104 Introduction to Blueprint Reading	5
FACM 105 Engineering Drawings	4
FACM 106 Introduction to Hydraulics/Pneumatics	5
FACM 107 Machine Components	5
FACM 108 Mechanical and Machine Maintenance	5
FACM 109 Tools and Equipment	3
FACM 110 Introduction to Building Maintenance	2
FACM 111 Building Maintenance and Repair Methods	5
FACM 120 Custodial Services	4
FACM 121 Grounds Keeping	5

Students must choose one of the following options:

Option A:	
FACM 123 HVAC Systems	4
FACM 220 Remodeling	3
FACM 221 Small Business Planning	3
FACM 230 Computers in Industry	2
FACM 231 Computer Applications	4

Option B:	
FACM 140 Boiler Operations and Certification	12
FACM 141 Advanced Boiler Operations	4

Option C: Work-based Learning	
FACM 142 Advanced Projects	8
WBAS 101 Welding Basics	8

Certificate of Training: 83 Credits

BOILER OPERATIONS REQUIRED COURSEWORK	CREDITS
FACM 140 Boiler Operations and Certification	1

Fashion Construction & Design

This program is specifically designed to provide training to students of all skill levels, from those without any basic sewing experience to those with advanced knowledge and skills. Students prepare for a variety of positions within the fashion/apparel industry. They learn the principles of garment and soft textile construction, pattern alterations, garment fit, textiles, patternmaking, and fashion design. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Enrollment Dates: Fall and spring quarters

Program Length: Four quarters (approximate)

FACULTY

Ryliss Bod, 253.680.7138, ryliss@bates.ctc.edu

www.bates.ctc.edu/Fashion

Certificate of Competency: 89 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
REQUIRED COURSEWORK			CREDITS
FASH	101	Introduction to Textiles	3
FASH	102	Beginning Quilting	3
FASH	103	Fashion Accessories – Home Decor	4
FASH	104	Pattern Alterations – Upper Body	3
FASH	105	Beginning Construction – Woven Tops & Vests	4
FASH	106	Beginning Construction – Unlined Jackets	4
FASH	107	History of Fashion Design – Fall/Winter Trends	2
FASH	120	Beginning Construction – Nightwear	4
FASH	121	Designers of Influence – Pre-19th Century	2
FASH	122	Pattern Alterations – Lower Body	3
FASH	123	Beginning & Intermediate Construction – Skirts	4
FASH	124	Beginning Construction – Pants	4
FASH	130	History of Fashion Design – Spring /Summer Trends	2
FASH	131	Intermediate Construction – Unlined Jackets	4
FASH	132	Intermediate Construction – Pants	4
FASH	133	Beginning Knitwear	4
FASH	134	Sewing Fundamentals	3
FASH	140	Designers of Influence – 19th Century to Present Day	2
FASH	141	Fashion Accessories – Purses and Bags	3
FASH	142	Beginning & Intermediate Construction – Dresses	4
FASH	143	Intermediate Construction – Tops and Shirts	4
FASH	144	Lined Coats and Jackets	4

Fire Protection Engineering Technology

Fire protection engineering technicians design and service fire sprinklers, fire alarms, and other types of in-place detection and suppression systems. The program is supplemented by preparation for NICET examinations, enabling students to choose from three career paths: Automatic Sprinkler Layout, Fire Alarm/Suppression Systems Layout, and Inspection, Testing, and Maintenance.

Enrollment Dates: Fall and spring quarters
Program Length: Four quarters (approximate)

FACULTY

Ron Greenman, 253.680.7346, rgreenman@bates.ctc.edu

Associate of Technology Degree: 109 Credits

Associate of Applied Science -Transfer Degree: 119 Credits

GENERAL EDUCATION REQUIREMENTS (AT Degree)		CREDITS
Level	Human Relations	5
Level	Communications	5
Level	Mathematics	5

GENERAL EDUCATION REQUIREMENTS (AAS-T Degree)		CREDITS
Level	Human Relations	5
Level	Communications	10
Level	Mathematics	10

An AAS-T Degree is directly transferable by an articulation agreement with The Evergreen State College. A transferring student will enter The Evergreen State College as an upper classman but will primarily enroll in lower division, general education coursework. Upon completion the student will be eligible for a Bachelors of Technology Degree.

REQUIRED COURSEWORK - CORE		CREDITS
FPET	101 Introduction to Fire Protection Engineering	3
FPET	102 Building Construction	5
FPET	103 Research Methods	5
FPET	104 History of Fire Protection	1
FPET	105 Occupational Safety	1
FPET	106 Applied Math and Science	4
FPET	107 Alarm and Suppression System Design I	5
FPET	108 Project Contracts	2
FPET	109 Drafting Fundamentals I	4
FPET	110 Codes and Standards	5
FPET	111 Career Advancement Strategies	5
FPET	112 Sprinkler Design I	5
FPET	113 Drafting Fundamentals II	3
FPET	114 Introduction to Inspection and Testing	3
FPET	115 The Business of Fire Protection	2
FPET	116 Drafting Fundamentals III	3
FPET	117 Fire Protection Project/Applications	3
FPET	200 Advanced Codes	3
FPET	201 Projects I *	4
FPET	202 Projects II *	4
FPET	203 Projects III*	4
FPET	204 Projects IV *	4
FPET	205 Practical Applications I-Design	4
FPET	206 Practical Applications II-Commissioning and Inspections	3
FPET	207 Practical Applications III-Water Supplies	4
FPET	208 Practical Applications IV-Risk Management	3
FPET	211 Applied Chemistry and Physics*	2

* Students may substitute any or all of these courses with a work-based learning component for a total of 18 credits.

Certificate of Training: 41 Credits

FIRE PROTECTION ENGINEERING - INSPECTION, TESTING, AND MAINTENANCE TECHNICIAN

REQUIRED COURSEWORK		CREDITS
FPET	101 Introduction to Fire Protection Engineering	3
FPET	105 Occupational Safety	1
FPET	107 Alarm and Suppression System Design I	5
FPET	108 Project Contracts	2
FPET	110 Codes and Standards	5
FPET	114 Introduction to Inspection and Testing	3
FPET	200 Advanced Codes	3
FPET	206 Practical Applications II-Commissioning and Inspections*	3
FPET	210 Notification Integration	1
FPET	212 Sprinkler Equipment and Systems	3
FPET	214 Special Systems and Equipment	3
FPET	216 Special Hazards Systems	4
FPET	217 Notification Appliance and Monitoring Applications	2
FPET	218 Detection Systems	3

*This course may be substituted with a work-based learning component.

Fire Service

Students prepare for careers as fire fighters, or in closely related occupations that require certification as a firefighter in this program that is accredited by the International Fire Service Accreditation Congress. Training incorporates all entry-level requirements according to nationally recognized standards.

Prerequisites:

1. Applicants must meet predetermined assessment test levels in writing, reading, algebra, mechanical reasoning, and space relations.
2. Applicants are to have good eyesight, normal color vision, and be able to pass a stringent physical examination.
3. Applicants must have a current Washington State driver's license, a good driving history, and no criminal record.
4. Students are required to maintain and show proof of medical/health insurance for the duration of Bates Fire Service educational career.

Enrollment Dates: Fall, winter, and summer quarters

Program Length: Six quarters (approximate)

FACULTY

Jim Anderson, 253.680.7462, janderson@bates.ctc.edu

Pat Piper, 253.680.7463, ppiper@bates.ctc.edu

Darrell Taylor, 253.680.7465, dtaylor@bates.ctc.edu

www.bates.ctc.edu/FireFighter

Associate of Technology Degree: 99 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
FIRES	101	Orientation to Fire Service	2
FIRES	102	Firefighter Safety	4
FIRES	103	Fire Service Applications I	5
FIRES	104	Physical Fitness I	1
FIRES	105	Introduction to Fire Science	3
FIRES	106	Fire Hose and Appliances	3
FIRES	107	Fire Service Applications II	5
FIRES	108	Physical Fitness II	1
FIRES	109	Ladders	5
FIRES	110	Intermediate Fire Service	2
FIRES	111	Fire Service Applications III	4
FIRES	112	Physical Fitness III	1
FIRES	121	Wildland Firefighter	2
FIRES	122	Fire Vehicle Operations	4
FIRES	123	Fire Service Applications IV	5
FIRES	124	Physical Fitness IV	1
FIRES	201	Rescue Procedures	3
FIRES	202	Advanced Fire Service	3
FIRES	203	Fire Service Applications V	5
FIRES	204	Physical Fitness V	1
FIRES	205	Hazardous Materials	3
FIRES	206	Employment Preparation	2
FIRES	207	Strategy, Tactics, and Incident Management	2
FIRES	208	Fire Service Applications VI	4
FIRES	209	Healthcare Provider	1
FIRES	210	Confined Space Rescue	1
FIRES	211	Advanced Firefighter	3

Option A: Advanced Firefighter			CREDITS
FIRES	220	Fire Service Applications VII	4
FIRES	221	Experiential Lab/Drill	4

Option B: Emergency Medical Technician			CREDITS
FIRES	225	Emergency Medical Technician (EMT)	8

Students must choose either Option A or Option B:

Hearing Instrument Technology

To apply for a hearing instrument fitter/dispenser license in Washington State, applicants must successfully complete degree requirements from an approved two-year education program. Bates' Hearing Instrument Technology program is approved by the Washington State Board of Hearing and Speech for students to prepare for careers as hearing instrument fitters/dispensers. Instruction includes professional terminology, anatomy and physiology of the normal ear, common medical disorders that may affect hearing, patient/family education, ethics, basic acoustics, hearing aid electronics and sound processing schemes. In an on-campus hearing instrument study clinic, students perform hearing assessments, assist patients in the selection, procurement and fitting of hearing aids, troubleshoot hearing aid problems and perform minor repairs. Students are also introduced to business aspects of the industry.

Prerequisites:

1. Applicants must be fully ready to enter into general education courses. This entry requirement may be satisfied by providing the registrar with official transcripts showing actual completion of general education courses, or by satisfactory completion of placement tests that enable the student to enroll directly into required general education courses.
2. To meet Washington State residency requirements for program completion, students must be enrolled in the Hearing Instrument Technology career education program at Bates Technical College for their last 1,284 hours of training.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Marci Leong, 253.680.7319, mleong@bates.ctc.edu
www.bates.ctc.edu/Hearing

Associate of Technology Degree: 109 Credits

GENERAL EDUCATION REQUIREMENTS

		CREDITS
Level	Human Relations	5
Level	Communications	5
Level	Mathematics	5

REQUIRED COURSEWORK

		CREDITS
110	Introduction to Hearing Professions	5
111	Safety Practices	4
112	Acoustics	5
113	Hearing Assessment I	3
120	Anatomy and Physiology	5
121	Instrumentation	5
122	Hearing Assessment II	3
130	Disorders of the Auditory System	5
131	Hearing Aids	5
132	Audiometric Interpretation I	5
210	Hearing Assessment III	3
211	Aural Rehabilitation I	3
212	Business Aspects I	5
213	Clinical I	3
220	Hearing Aid Evaluation	5
221	Audiometric Interpretation II	5
222	Hearing Aids II	5
223	Clinical II	3
230	Hearing Aid Service and Repair	5
231	Aural Rehabilitation II	4
232	Business Aspects II	4
233	Clinical III	4

Heating, Ventilation, Air Conditioning & Refrigeration Technician

Students prepare for certified entry-level employment in the heating, ventilation, air conditioning, and refrigeration industry. The technical skills acquired in this program may be applied in areas such as air conditioning, systems controls, energy management systems, heating and ventilation technicians, and sales. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Note: Students are required to pass the Air Conditioning and Refrigeration Institute industry competency exam to complete the program: Two examinations to obtain a degree; one exam to obtain a certificate. Sufficient training is provided to qualify students to take the Environmental Protection Agency CFC certification examination required to work in the industry. A total of 1,100 hours of credit is applied toward the Washington State O6A electrical certificate.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Mark Peila, 253.680.7255, mpeila@bates.ctc.edu

Associate of Technology Degree: 103 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5
REQUIRED COURSEWORK			CREDITS
HVAC	101	HVAC Fundamentals	3
HVAC	102	Safety	2
HVAC	103	HVAC/R Science	2
HVAC	104	Tools and Equipment	4
HVAC	105	Refrigerant and Refrigeration Systems I	4
HVAC	106	Refrigerant and Refrigeration Systems II	3
HVAC	107	Electrical Systems and Components	5
HVAC	108	Electrical Troubleshooting	3
HVAC	109	Soldering and Brazing Applications	3
HVAC	110	Residential Systems	5
HVAC	111	Light Commercial Systems	5
HVAC	112	Heat Pump Systems	4
HVAC	201	System Design, Sizing, and Layout	4
HVAC	210	Drafting and Blueprint Applications	4
HVAC	211	Commercial Environmental Systems	5
HVAC	212	Chilled Water Systems	2
HVAC	213	Hydronic Heating Systems	2
HVAC	214	Cooling Tower	1
HVAC	215	Thermal Storage	2
HVAC	216	CFC Exam Preparation	1
HVAC	217	Commercial Refrigeration	3
HVAC	218	Installation, Maintenance, and Troubleshooting	2
HVAC	219	AHRI Industry Competency Exam #1	3
HVAC	220	AHRI Industry Competency Exam #2	3
HVAC	221	Industry Math	5

Students must choose one option:

Option A:			CREDITS
HVAC	202	Welding Processes	2
HVAC	203	Hand-held Torch Burning Applications	2
HVAC	204	SMAW (ARC) Applications	2
HVAC	205	GMAW (MIG) applications	2

Option B:			CREDITS
HVAC	206	Basic Metalworking	2
HVAC	207	Basic Layout and Patterns	2
HVAC	208	Fabrication Practices	2
HVAC	209	Air Balance and Duct Sizing	2

Certificate of Competency: 99 Credits

HVAC/R SUPPORT TECHNICIAN			CREDITS
GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
HVAC	101	HVAC Fundamentals	3
HVAC	102	Safety	2
HVAC	103	HVAC/R Science	2
HVAC	104	Tools and Equipment	4
HVAC	105	Refrigerant and Refrigeration Systems I	4
HVAC	106	Refrigerant and Refrigeration Systems II	3
HVAC	107	Electrical Systems and Components	5
HVAC	108	Electrical Troubleshooting	3
HVAC	109	Soldering and Brazing Applications	3
HVAC	110	Residential Systems	5
HVAC	111	Light Commercial Systems	5
HVAC	112	Heat Pump Systems	4
HVAC	210	Drafting and Blueprint Applications	4
HVAC	211	Commercial Environmental Systems	5
HVAC	212	Chilled Water Systems	2
HVAC	213	Hydronic Heating Systems	2
HVAC	214	Cooling Tower	1
HVAC	215	Thermal Storage	2
HVAC	216	CFC Exam Preparation	1
HVAC	217	Commercial Refrigeration	3
HVAC	218	Installation, Maintenance, and Troubleshooting	2
HVAC	219	AHRI Industry Competency Exam #1	3
HVAC	220	AHRI Industry Competency Exam #2	3
HVAC	221	Industry Math	5

Students must choose one option:

Option A:			CREDITS
HVAC	202	Welding Processes	2
HVAC	203	Hand-held Torch Burning Applications	2
HVAC	204	SMAW (ARC) Applications	2
HVAC	205	GMAW (MIG) applications	2

Option B:			CREDITS
HVAC	206	Basic Metalworking	2
HVAC	207	Basic Layout and Patterns	2
HVAC	208	Fabrication Practices	2
HVAC	209	Air Balance and Duct Sizing	2

Home Technology Integration

This program provides students with the technical competence needed for the installation, integration, and troubleshooting of automated home subsystems including home security, audio/video, computer networks, electrical and structured wiring, HVAC (heating, ventilation, and air conditioning), cable/satellite, broadband, and telecommunications. Students prepare for industry recognized CEDIA Installer Level 1 certification.

Enrollment Dates: Fall and spring quarters

Program Length: Two quarters (approximate)

FACULTY

David Skeen, 253.680.7352, dskeen@bates.ctc.edu
www.bates.ctc.edu/HTI

Certificate of Training: 44 Credits

REQUIRED COURSEWORK		CREDITS
101	Introduction to Home Technology	2
102	Security and Fire Alarm Systems	2
103	Surveillance/ CCTV	2
104	Access Control Systems	2
105	Electronic Fundamentals	3
106	Electrical Wiring and Devices	2
107	Structured Cabling	2
108	Installation Practices	2
109	Low Voltage Services	3
110	Introduction to Wireless Networking	2
111	Wireless LAN/WLAN Standards	2
112	Introduction to Networks	2
113	OSI Model	3
114	MS-Windows/ Network Operating Systems (NOSs)	3
115	Remote Connectivity	3
116	Troubleshooting Networks	2
117	Residential Audio/ Visual Systems	2
118	Automating/ Integrating Residential Systems	2
119	Advanced HSI Applications *	3

*This course may be substituted with a work-based learning component.

Industrial Trades: I-BEST

The Industrial Trades I-BEST program prepares students for entry into the high demand, high wage industry of machining, manufacturing, and other related industries. Students receive skills training in industry-specific mathematics, welding, and employment success strategies.

Certificate of Training: 19 Credits

REQUIRED COURSEWORK			CREDITS
AMATH	101	Trades Math	3
AMATH	102	Precision Measurement	3
IBEST	105	Success Strategies	5
WBAS	101	Welding Basics	8

Information Technologies Specialist

Information technologies specialists are an integral part of nearly every industry in today's technology-dominated workplace. Students in this program prepare for careers that focus on PC and network support with emphasis on both practical experience and certification preparation, including LAN/WAN administrator, network system support specialist. Students are encouraged to obtain Microsoft, Cisco, and CompTIA, certifications. Possible certifications students can obtain include, A+, MCITP, MCP, MCDST, MCSE, and MCSA.

Note: Bates Technical College is an official Cisco Networking Academy.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Emmett Peterson, 253.680.7066, epeterson@bates.ctc.edu

Associate of Technology Degree: 180 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
INFO	101	Computer Applications Essentials	4
INFO	102	Fundamentals of Information Technology	4
INFO	103	Internet Applications	5
INFO	104	A+ Essentials	4
INFO	105	A+ Practical	4
INFO	106	Electronics Basics	5
INFO	107	Structured Cabling	3
INFO	110	Emerging Technologies	5
INFO	111	Practical Applications	5
CNST	206	MS Client Operating Systems	5
CNST	207	Network Infrastructure	5
CNST	209	Directory Services	5
CNST	210	Network Security	5
CNST	201	Introduction to Cisco Internetworking	5
CNST	202	Introduction to Cisco Routing Technologies	4
CNST	205	Fundamentals of Linux	5

Students must chose 20 credits from the elective list. 20

ELECTIVES LIST			CREDITS
WIRE	201	Telecommunications Network Cabling	5
WIRE	202	Fiber Optics	5
CNST	201	Cisco Advanced Routing/Switching	5
CNST	202	Cisco Advanced Networks	5
INFO	108	Project Management	5
INFO	109	Employment Preparation	5

Land Survey

Students prepare for careers as survey technicians, using equipment and software that is standard in the industry. Classroom and laboratory settings closely resemble a small surveying firm to provide students with practice in all aspects of projects common to the profession including project definition, document research, computations, CAD drawing, field work (preliminary to final staking), and client presentations. This program provides extended learning for people previously or currently employed in this occupation as well as individuals just entering the field of surveying.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Richard Lang, 253.680.7345, rlang@bates.ctc.edu
www.bates.ctc.edu/LandSurveying

Associate of Technology Degree: 120 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
FIRST YEAR			
LAND	101	The Computer a Surveying Tool	3
LAND	102	Applied Surveying Math	5
LAND	110	Basic Surveying - CAD	3
LAND	111	First Aid/CPR	1
LAND	112	Flagger Certification	1
LAND	113	Introduction to Global Positioning Systems	3
LAND	120	Position Tolerance and Error	3
LAND	121	Schematics	4
LAND	130	Level Instruments	6
LAND	131	Total Station Instruments	8
LAND	135	Surveying Legal Guidelines	3
LAND	140	Intermediate Field Surveying	6

SECOND YEAR			CREDITS
LAND	205	Advanced Surveying Math	5
LAND	210	Utility CAD Applications	5
LAND	211	Subdivision Planning and Design	5
LAND	212	Roadway Design	5
LAND	220	Field Traverse – CAD	5
LAND	221	Global Positioning Systems (GPS)	4
LAND	222	Plan Review	6
LAND	225	Construction Surveying and Layout	5
LAND	230	Independent Projects	4
LAND	231	Survey Records – CAD	5
LAND	240	Legal Descriptions	5
LAND	241	LSAW Seminar	3
LAND	242	Independent Projects	4

Certificate of Competency: 58 Credits

SURVEYOR'S AID			CREDITS
GENERAL EDUCATION REQUIREMENTS			
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
LAND	101	Computers As An Engineering Tool	3
LAND	102	Applied Surveying Math	5
LAND	110	Basic Surveying - CAD	3
LAND	111	First Aid/CPR	1
LAND	112	Flagger Certification	1
LAND	113	Introduction to Global Positioning Systems	3
LAND	120	Position Tolerance and Error	3
LAND	121	Schematics	4
LAND	130	Level Instruments	6
LAND	131	Total Station Instruments	8
LAND	140	Intermediate Field Surveying	7

Legal Office Assistant

Students in this program prepare for administrative support careers in the legal environment serving law firms, corporations and government agencies, as well as municipal, state and federal courts. The curriculum offers extensive hands-on training in the preparation of legal documents. Students are introduced to different areas of legal specialization through preparation of legal documents for mock cases, which provides exposure to many areas of the law. To enhance skills, students often participate in work-based learning opportunities with local law firms, government legal offices, and corporations. Students are encouraged to test for the Accredited Legal Secretary certification (ALS) and become members of the National Association of Legal Secretaries (NALS).

Prerequisite: Minimum typing ability of 25 words per minute on keyboard.
 Recommendations - Compass Scores
 Read 85 and above
 Write 77 and above
 College Algebra 35 and above

Differential Aptitude Test – Clerical Speed	45
Differential Aptitude Test – Spelling	44
Differential Aptitude Test – Language Usage	19

Students scoring below these levels often have difficulty successfully completing the program. Please consult with instructor.

Individuals with any type of criminal background may find it exceeding difficult to find employment in the legal profession.

Enrollment Dates: Fall and spring quarters
Program Length: Eight quarters (approximate)

FACULTY
 Karin Kelley, 253.680.7375, kkelley@bates.ctc.edu

Associate of Applied Sciences -Transfer Degree: 119

GENERAL EDUCATION REQUIREMENTS			CREDITS
100&+	Level	Human Relations	5
100&+	Level	Mathematics	5
ENGL&	101	English Composition I	5
CMST&	220	Public Speaking	5
		Humanities/Social Sciences Elective	5

REQUIRED COURSEWORK			CREDITS
LEGAL	101	MS Word I	3
LEGAL	102	MS Word II	3
LEGAL	103	Legal Office Procedures I	5
LEGAL	104	MS Outlook	2
LEGAL	105	Records Management	4
LEGAL	106	Business Grammar I	3
LEGAL	107	Business Documentation	2
LEGAL	108	Legal Terminology	5
LEGAL	109	Legal Research	2
LEGAL	110	Business Grammar II	3
LEGAL	201	Beginning Accounting	5
LEGAL	202	Legal Office Projects	5
LEGAL	203	Legal Billing Software	1
LEGAL	204	MS Word III	4
LEGAL	205	MS PowerPoint for Legal Assistants	3
LEGAL	206	MS Excel I	3
LEGAL	207	Criminal Law I	3
LEGAL	208	Ethics	2
LEGAL	209	Civil Litigation	5

			CREDITS
LEGAL	210	Criminal Law II	3
LEGAL	211	ALS Preparation I	2
LEGAL	212	ALS Preparation II	2
LEGAL	213	ALS Certification Exam	1
LEGAL	214	Business Grammar III	3
LEGAL	215	Keyboarding	5
LEGAL	281	Independent Project I	4
LEGAL	282	Independent Project II	4
LEGAL	283	Independent Project III	4
LEGAL	284	Independent Project IV	3
LEGAL	291	Work-based Learning Experience I	4
LEGAL	292	Work-based Learning Experience II	4
LEGAL	293	Work-based Learning Experience III	4
LEGAL	294	Work-based Learning Experience IV	3

Associate of Technology Degree: 109 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Mathematics	5
ENGL&	101	English Composition I	5

REQUIRED COURSEWORK			CREDITS
LEGAL	101	MS Word I	3
LEGAL	102	MS Word II	3
LEGAL	103	Legal Office Procedures I	5
LEGAL	104	MS Outlook	2
LEGAL	105	Records Management	4
LEGAL	106	Business Grammar I	3
LEGAL	107	Business Documentation	2
LEGAL	108	Legal Terminology	5
LEGAL	109	Legal Research	2
LEGAL	110	Business Grammar II	3
LEGAL	201	Beginning Accounting	5
LEGAL	202	Legal Office Projects	5
LEGAL	203	Legal Billing Software	1
LEGAL	204	MS Word III	4
LEGAL	205	MS PowerPoint for Legal Assistants	3
LEGAL	206	MS Excel I	3
LEGAL	207	Criminal Law I	3
LEGAL	208	Ethics	2
LEGAL	209	Civil Litigation	5
LEGAL	210	Criminal Law II	3
LEGAL	211	ALS Preparation I	2
LEGAL	212	ALS Preparation II	2
LEGAL	213	ALS Certification Exam	1
LEGAL	214	Business Grammar III	3
LEGAL	215	Keyboarding	5

Depending upon availability, students may choose work-based learning experiences or any combination of LEGAL 281,282, 283, or 284 (15 total credits).

LEGAL	281	Independent Project I	4
LEGAL	282	Independent Project II	4
LEGAL	283	Independent Project III	4
LEGAL	284	Independent Project IV	3
	or		
LEGAL	291	Work-based Learning Experience I	4
LEGAL	292	Work-based Learning Experience II	4
LEGAL	293	Work-based Learning Experience III	4

Legal Office Assistant (continued)

LEGAL	294	Work-based Learning Experience IV	3
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Certificate of Competency: 73 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Mathematics	5
90+	Level	Communications	5

REQUIRED COURSEWORK			CREDITS
FIRST YEAR			
LEGAL	101	MS Word I	3
LEGAL	102	MS Word II	3
LEGAL	103	Legal Office Procedures I	5
LEGAL	104	MS Outlook	2
LEGAL	105	Records Management	4
LEGAL	106	Business Grammar I	3
LEGAL	107	Business Documentation	2
LEGAL	108	Legal Terminology	5
LEGAL	109	Legal Research	2
LEGAL	110	Business Grammar II	3
LEGAL	202	Legal Office Projects	5
LEGAL	205	MS PowerPoint for Legal Assistants	3
LEGAL	206	MS Excel I	3
LEGAL	207	Criminal Law I	3
LEGAL	208	Ethics	2
LEGAL	209	Civil Litigation	5
LEGAL	210	Criminal Law II	3
LEGAL	211	Business Grammar II	2

Machinist

Machinists produce precision parts, tools, and instruments utilizing both manual and computerized fabrication systems. Students prepare for apprenticeship with instruction that includes extensive hands-on experience in the use of traditional precision tooling and machining equipment, as well as sophisticated, state-of-the-art equipment including Haas lathes, the Visual Quick Code Probing System and CG Tech software. This is a pre-apprenticeship program for the Tacoma Machinists Joint Apprenticeship Training Committee. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Enrollment Dates: Every quarter including summer

Program Length: Six quarters (approximate)

FACULTY

Bob Storrar, 253.680.7258, bstorrar@bates.ctc.edu

Barry Young, 253.680.7214, byoung@bates.ctc.edu

www.bates.ctc.edu/Machinist

Associate of Technology Degree: 112 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
MACH	111	Machine Shop Mathematics I	2
MACH	112	Industrial Safety I	3
MACH	113	Measurement Applications	3
MACH	114	Lathe Operations I	4
MACH	115	Machine Shop Mathematics II	5
MACH	121	Lathe Operations II	4
MACH	122	Grinding I	2
MACH	123	Machining I	2
MACH	124	Milling I	2
MACH	125	Statistical Process Control	3
MACH	126	Blueprint Reading I	2
MACH	131	Industrial Safety II	2
MACH	132	Geometric Dimensioning and Tolerancing	3
MACH	133	Milling II	3
MACH	134	Advanced Machining I	4
MACH	135	Advanced Machining II	4
MACH	136	First Aid/CPR	1
MACH	142	Advanced Machine Shop Applications or	8
WBAS	101	Welding Basics	0
MACH	211	Machining III	1
MACH	212	Manufacturing Support	1
MACH	213	Advanced Machining III	5
MACH	216	Blueprint Reading II	5
MACH	217	Blueprint Reading III	2
MACH	221	CNC Lathe I	2
MACH	222	CNC Lathe II	5
MACH	223	Machining IV	2
MACH	224	MasterCam/Solid Works	5
MACH	231	CNC Mill I	2
MACH	232	Advanced CNC Machining I	5
MACH	233	Advanced CNC Machining II	5

Certificate of Competency: 72 Credits

MANUAL MACHINING			CREDITS
GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
REQUIRED COURSEWORK			CREDITS
MACH	111	Machine Shop Mathematics I	2
MACH	112	Industrial Safety I	3
MACH	113	Measurement Applications	3
MACH	114	Lathe Operations I	4
MACH	115	Machine Shop Mathematics II	5
MACH	121	Lathe Operations II	4
MACH	122	Grinding I	2
MACH	123	Machining I	2
MACH	124	Milling I	2
MACH	125	Statistical Process Control	3
MACH	126	Blueprint Reading I	2
MACH	131	Industrial Safety II	2
MACH	132	Geometric Dimensioning and Tolerancing	3
MACH	133	Mill Operations II	3
MACH	134	Advanced Machining I	4
MACH	135	Advanced Machining II	4
MACH	136	First Aid/CPR	1
MACH	142	Advanced Machine Shop Applications or	8
WBAS	101	Welding Basics	

Manufacturing: CNC Machining & Engineering

This program prepares students for employment in the machinist/manufacturing field. Using a variety of machine tools including computer numeric control (CNC) equipment, students learn to make metal parts to precise specifications. Knowledge of the working properties of metal, capabilities of machine tools and equipment, and standard shop practices prepare students for employment in all types of factories, industries, and maintenance shops.

FACULTY

Bob Storrar, 253.680.7258, bstorrar@bates.ctc.edu

Barry Young, 253.680.7214, byoung@bates.ctc.edu

Associate of Technology Degree: 94 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	10
CMPL	111	Basic Applications	3

REQUIRED COURSEWORK			CREDITS
MFCNC	101	Introduction to Machine Manufacturing Processes	3
MFCNC	102	Machine Design Fundamentals	3
MFCNC	103	Mechanical Design Blueprints	4
MFCNC	104	Geometrics and GD&T	3
MFCNC	105	Secondary Operations, Benchwork	2
MFCNC	106	Precision Measurement and Layout	3
MFCNC	107	Fundamental Manual Machining	6
MFCNC	108	Introduction to CNC Processing Technology	2
MFCNC	109	CNC Systems and Controls	3
MFCNC	110	CNC Programming	4
MFCNC	111	CNC Troubleshooting	3

Students must choose one option (36 total credits):

Option A: CNC Operations

MFCNC	201	CNC Lathe I	4
MFCNC	202	CNC Lathe II	4
MFCNC	203	CNC Milling I	5
MFCNC	204	CNC Milling II	5
MFCNC	205	Computer-Aided Manufacturing	4
MFCNC	206	Introduction to Computer-Aided Drafting (CAD)	2
MFCNC	207	Advanced Projects I	5
MFCNC	208	Advanced Projects II	5
MFCNC	209	Advanced Manufacturing Processes	3
MFCNC	210	Emerging Technologies	4

Option B: Integrated Automation/Manufacturing/Design (34 total credits):

MFCNC	205	Computer Aided Manufacturing	4
MFCNC	209	Advanced Manufacturing Processes	3
MFCNC	210	Emerging Technologies	4
MFCNC	220	CAD I	3
MFCNC	221	CAD II	3
MFCNC	222	CAD III	4
MFCNC	223	Electronic Fundamentals	4
MFCNC	224	Electronic Applications	3
MFCNC	225	Microcontrollers	3
MFCNC	226	Hydraulics and Fluid Power	2
MFCNC	227	Sensors/Scanner Technology	3
MFCNC	228	Programmable Controllers	4
MFCNC	229	Plastic Mold Manufacturing	2
MFCNC	230	Introduction to Mechatronics	3
MFCNC	231	Basic Robotics	2

Marketing & Business Management

Students prepare for careers in sales, advertising, merchandising, customer service, market research, business and management, and public relations. When available, work-based learning activities provide students with the opportunity to work in Puget Sound businesses. Major projects allow students to apply competencies such as preparing formal business plans, performing research studies, and developing advertising campaigns. This program also provides extended learning opportunities to persons previously or currently employed in these and related professions.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Kathy Brock, 253.680.7376, kbrock@bates.ctc.edu

Associate of Technology Degree: 105 – 108 – 110 Credits

(Associate of Applied Science - Transfer Degree: 110 – 113 – 115 Credits)

GENERAL EDUCATION REQUIREMENTS (AT Degree)			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

GENERAL EDUCATION REQUIREMENTS (AAS-T Degree)

100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5
100+	Level	Humanities/Social Sciences	5

REQUIRED COURSEWORK

			CREDITS
MARK	101	Marketing Principles	5
MARK	102	Customer Service	5
MARK	103	Written Business Communication	3
MARK	104	Business Negotiations and Collaboration	3
MARK	105	Information Research and Acquisition	1
MARK	106	Business Concepts	5
MARK	107	Cross Cultural Communications	5
MARK	108	International Trade Practices	5
MARK	109	Economics: A Marketing Perspective	5
MARK	110	Principles of Management and Supervision	5
MARK	111	Cyber Marketing/E-Commerce	5
MARK	112	Business Law	5
MARK	113	Accounting Principles	5

Students must choose one option:

Option A - Marketing

MARK	121	Branding/Corporate Identity	2
MARK	122	Advertising: Creation and Planning	4
MARK	123	Business Software Applications	3
MARK	124	Sales Strategies and Consumer Psychology	5
MARK	125	Business and Marketing Presentation Skills	3
MARK	126	Planning and Leadership	5
MARK	127	Public Relations	3
MARK	128	Marketing Research and Forecasting	3
MARK	129	Advanced Marketing Projects	5

Option B: Business Management

MARK	201	Introduction To Leadership Skills and Ethics	3
MARK	202	Introduction To Strategic Marketing	4
MARK	203	Introduction To Business Accounting/Finance	5
MARK	204	Introduction To Presentation and Facilitation Skills	3

MARK	205	Advanced Business Projects	5
MARK	206	Teaming for Success	3
MARK	207	Introduction To Managing Change	3
MARK	208	Achieving Results Through Influence	3
MARK	209	Entrepreneurial Concepts	5
MARK	210	Introduction to Project Management	4

Option C: International Commerce

MARK	221	International Business Law	2
MARK	222	Supply Chain Operations	5
MARK	223	Supply Chain Risk Management	2
MARK	224	Supply Chain Intermediaries	5
MARK	225	International Marketing	3
MARK	226	Offshore Procurement Process	2
MARK	227	International Market Research and Planning	3
MARK	228	Global Trade Financing	5
MARK	229	International Payment, Credit, and Collections	5
MARK	230	Advanced Projects - Marketing Plan Implementation	4

Certificate of Competency: 54 Credits

SALES AND CUSTOMER SERVICE

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
100+	Level	Business Mathematics	5

REQUIRED COURSEWORK

			CREDITS
MARK	101	Marketing Principles	5
MARK	102	Customer Service	5
MARK	103	Written Business Communication	3
MARK	105	Information Research and Acquisition	1
MARK	106	Business Concepts	5
MARK	122	Advertising: Creation and Planning	4
MARK	123	Business Software Applications	3
MARK	124	Sales Strategies and Consumer Psychology	5
MARK	125	Business and Marketing Presentation Skills	3

Mechanical Engineering

Students prepare for careers as engineering technicians with an emphasis on mechanical systems. Instruction focuses on computer-aided drafting and design (CADD). Students have opportunities to work on community and college projects that may include patent application drawings and detailed machine shop production drawings. Extended learning opportunities are available with industry partners.

Enrollment Dates: Every quarter including summer
Program Length: Six quarters (approximate)

FACULTY

Bob Ackein, 253.680.7344, backein@bates.ctc.edu

Associate of Technology Degree: 113 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
MET	101	Computers As An Engineering Tool	4
MET	102	Basic Geometric Constructions	8
MET	103	Drawing Sheet Standards	4
MET	104	Introduction to Sketching	3
MET	105	Orthographic Projections	7
MET	106	Sectional Views	5
MET	107	Auxiliary Views	5
MET	108	Principles of Dimensioning	4
MET	109	Annotative Scaling in AutoCAD	4
MET	110	Dimensioning Practices	7
MET	111	Tolerancing	5
MET	213	Paper Space, Layout, and Viewports	5
MET	214	Engineering Projects I	7
MET	215	Axonometric Drawings	5
MET	216	Engineering Projects II	7
MET	217	Career Advancement Strategies	3

Students must choose one of the following options:

Option A – Machine Elements

MET	201	Machine Shop Drawings	4
MET	202	Threads, Fasteners, and Springs	3
MET	203	Gears	4
MET	204	Cams	4

Option B - Pneumatic/Hydraulic Systems

MET	205	Pneumatic/Hydraulic Symbols	3
MET	206	Piping and Instrumentation Drawings	4
MET	207	Valve Sections	4
MET	208	Pump Section	4

Option C - Sheet Metal Drawings

MET	209	Production Drawings	4
MET	210	Duct Fitting Symbols	3
MET	211	Flat Pattern Development	5
MET	212	Basic Air Flow Systems	3

Certificate of Competency: 90 Credits

MECHANICAL ENGINEERING			CREDITS
GENERAL EDUCATION REQUIREMENTS			
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
FIRST YEAR			
MET	101	Computers As An Engineering Tool	4
MET	102	Basic Geometric Constructions	8
MET	103	Drawing Sheet Standards	4
MET	104	Introduction to Sketching	3
MET	105	Orthographic Projections	7
MET	106	Sectional Views	5
MET	107	Auxiliary Views	5
MET	108	Principles of Dimensioning	4
MET	109	Annotative Scaling in AutoCAD	4
MET	110	Dimensioning Practices	7
MET	111	Tolerancing	5
MET	201	Machine Shop Drawings	4
MET	213	Paper Space, Layout, and Viewports	5
MET	214	Engineering Projects I	7
MET	217	Career Advancement Strategies	3

Certificate of Training: 52 Credits

BASIC AUTOCAD DRAFTING			CREDITS
GENERAL EDUCATION REQUIREMENTS			
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
MET	101*	Computers As An Engineering Tool	4
MET	102*	Basic Geometric Construction	8
MET	103	Drawing Sheet Standards	4
MET	104	Introduction to Sketching	3
MET	105	Orthographic Projections	7
MET	108*	Principles of Dimensioning	4
MET	110*	Dimensioning Practices	7

*These courses are prerequisites to the Intermediate AutoCAD certificate program.

Certificate of Training: 51 Credits

INTERMEDIATE AUTOCAD DRAFTING			CREDITS
GENERAL EDUCATION REQUIREMENTS			
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
MET	106	Sectional Views	5
MET	107	Auxiliary Views	5
MET	109	Annotative Scaling in AutoCAD	4
MET	111	Tolerancing	5
MET	213	Paper Space, Layout, and Viewports	5
MET	214	Engineering Projects I	7
MET	215	Axonometric Drawings	5

Occupational Therapy Assistant

Occupational therapy assistants work under the direction of occupational therapists to provide services to persons whose lives have been challenged due to injury, illness, developmental deficits or aging. Occupational therapy assistants view individuals in a holistic manner and help people prevent, lessen or overcome disabilities so they are able to function more independently in every aspect of daily living. Occupational therapy assistants use therapeutic activities and exercises to improve a client's skills for performing a variety of important everyday tasks safely and independently in their role at work, home, school, and in the community. Students in this program receive fundamental skills in occupational therapy and extensive clinical training. Successful completion of the program prepares students for careers as occupational therapist assistants in hospitals, out-patient clinics, rehabilitation centers, mental health centers, assisted living and nursing care facilities, and school systems.

PREREQUISITES:

1. Have completed high school or earned a GED, and be at least 18 years of age or have program director's permission.
2. Meet the pre-determined COMPASS levels in reading, writing, and math.
3. Successfully complete the following courses at the 100 or greater level: anatomy and physiology (BIOL& 175 or BIOL& 231 and 232 or BIOL& 241 and 242), medical terminology and English composition (ENGL&101).
4. Provide documented evidence of medical and dental health clearance, current immunizations and medical insurance.
5. Provide documented evidence of liability insurance coverage (\$1 million).
6. Provide documented evidence of current health care first-aid & CPR training and HIV training.
7. Pass a national criminal background check.

Enrollment Dates: Spring quarters

Program Length: Seven quarters (approximate)

Program Director:

Denise Tremblay, 253.680.7108, dtremblay@bates.ctc.edu

Career Specialist:

Jason Carroll, 253.680.7008, jcarroll@bates.ctc.edu

Associate of Technology Degree: 117 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
BIOL	170	Medical Terminology	2
BIOL&	175	Anatomy and Physiology	5
PSYC	270	Developmental Psychology	5
ENGL&	101	English Composition I	5
MATH	100+	Mathematics	5

REQUIRED COURSEWORK

OTA	101	Introduction to Occupational Therapy	4
OTA	102	Health and Wellness and the OTA	3
OTA	103	Functional Movement	5
OTA	104	Therapeutic Use of Self	5
OTA	105	Nervous System Functioning	4
OTA	106	Therapeutic Activities and Performance I	5
OTA	107	Developmental Disabilities and OT	5
OTA	108	Applied Experience – Developmental Settings	1
OTA	109	Adaptive Technologies	5
OTA	110	Documentation Skills	3
OTA	201	Therapeutic Activities and Performance II	5
OTA	202	Psychosocial Dysfunctions: Treatment Principles and Applications	8
OTA	203	Applied Experience – Mental Health Settings	1
OTA	204	Seminar – Applied Mental Health	1
OTA	210	Physical Disabilities: Treatment Principles and Applications	8
OTA	211	OTA and Special Settings	3
OTA	212	Applied Experience – Physical Rehabilitation Settings	1
OTA	213	Seminar – Applied Physical Rehabilitation	1
OTA	214	Professional Issues for the OTA	3
OTA	220	Clinical Fieldwork Level II – Rotation A	11
OTA	221	Clinical Fieldwork Level II – Seminar A	1
OTA	222	Clinical Fieldwork Level II – Rotation B	11
OTA	223	Clinical Fieldwork Level II – Seminar B	1

The occupational therapy assistant program at Bates has applied for accreditation with the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 4720 Montgomery Lane, P.O. Box 31220 Bethesda, MD 20824-1220. ACOTE's phone number c/o AOTA is 301-652-AOTA. Once accreditation of the program has been obtained, our graduates will be eligible to sit for the national certification examination for the occupational therapy assistant administered by the National Board for Certification in Occupational Therapy (NBCOT). After successful completion of this exam, the individual will be a certified occupational therapy assistant (COTA). In addition, most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certificate Examination. Note that a felony conviction may affect a graduate's ability to sit for the NBCOT certification examination or attain state licensure.

Paraeducator Foundations

This distance learning program is designed to provide professional development opportunities for working paraeducators, those seeking employment as paraeducators, school employees, and parents and people working with children in the private sector. Instruction provides graduates with the Washington State core competencies for paraeducators. Graduates may find employment under a variety of job titles that may include teacher aide, teacher assistant, paraeducator, and paraprofessional.

FACULTY

Elaine Kurlinski, 253.680.7230, ekurlinski@bates.ctc.edu
www.bates.ctc.edu/Paraeducator

Certificate of Training: 20 Credits

GENERAL EDUCATION REQUIREMENTS

			CREDITS
SOC	111	Understanding Diversity	5
PSYC&	100	General Psychology	5

REQUIRED COURSEWORK

			CREDITS
EDU	101	Introduction to School Law	3
EDU	103	Child Growth and Development	3
EDU	151	Abuse and Neglect of Children	1
SPED	101	Educating Students with Disabilities	3

Power Sports & Equipment Technology

Students in the program prepare for careers in the power sports and power equipment industries. Technicians in these areas maintain and repair a variety of two- and four-cycle engines, power trains, and chassis.

Power Sports: Maintenance and repair of power sports vehicles such as motorcycles, sport utility vehicles, all-terrain vehicles, personal watercraft, and boats for employment in dealerships, independent repair shops, and self-employment.

Power Equipment: Maintenance and repair of outdoor power equipment, including lawn and garden equipment and light industrial/commercial equipment. Employment may be in lawn and garden stores, department stores, rental companies, landscaping companies, golf courses, fleet repair facilities, government agencies, and self-employment.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

John Irish, 253.680.7476, jirish@bates.ctc.edu

Associate of Technology Degree: 111 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
POW	101	Introduction to Power Sports	5
POW	102	Pre-Delivery Maintenance	3
POW	103	Seasonal Maintenance	5
POW	104	Periodic Maintenance	5
POW	120	Engines – Failure Analysis	5
POW	121	Engine Repair Methods	5
POW	122	Engines Installation Methods	5
POW	130	Exhaust Systems	5
POW	131	Lubrication/Cooling Systems	5
POW	132	Advanced Engine Service	5
POW	140	Fundamentals of Electricity	3
POW	141	Electrical Systems	5
POW	142	Electrical Systems - Diagnosis	5
POW	143	Brake Systems	4
POW	150	Introduction to Power Trains	3
POW	151	Power Train Service	5
POW	152	Introduction to Marine Propulsion	3
POW	153	Marine Propulsion Service	5
POW	160	Introduction to Chassis	3
POW	161	Chassis Service	5
POW	162	Advanced Projects*	7

*This course may be substituted with a work-based learning component.

Certificate of Competency: 80 Credits

POWER SPORTS AND EQUIPMENT TECHNICIAN			CREDITS
GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
REQUIRED COURSEWORK			CREDITS
POW	101	Introduction to Power Sports	5
POW	102	Pre-Delivery Maintenance	3
POW	103	Seasonal Maintenance	5
POW	104	Periodic Maintenance	5
POW	120	Engines – Failure Analysis	5
POW	121	Engine Repair Methods	5
POW	122	Engines Installation Methods	5
POW	130	Exhaust Systems	5
POW	131	Lubrication/Cooling Systems	5
POW	132	Advanced Engine Service	5
POW	140	Fundamentals of Electricity	3
POW	141	Electrical Systems	5
POW	142	Electrical Systems - Diagnosis	5
POW	143	Brake Systems	4

Practical Nurse

Students prepare for careers as licensed practical nurses in a variety of healthcare settings. Clinical activities are an integral part of this program which is approved by the Washington Nursing Care Quality Assurance Commission. During the clinical phase, students demonstrate nursing competencies under supervision at clinical sites and improve skills by working with a healthcare professional in a preceptorship role. Graduates are required to pass the Washington State Practical Nursing licensing exam to practice as licensed practical nurses in Washington State. Prior to licensing exam, applicant will need to provide proof of high school graduation or equivalent.

Prerequisites: Applicants must...

1. Pass a clear Washington State Patrol criminal background check.
2. Obtain medical and dental clearance.
3. Provide documentary evidence of current immunizations, medical insurance (illness and injury), Health Care Provider CPR.
4. Possess a current unencumbered, active CNA license or proof of completion of a CNA Skills Set.
5. College-level math, English, human relations, anatomy and physiology (Biology 175 or >) within the last five years.
6. Possess current liability insurance coverage in the amount of \$1 million.
7. AIDS/HIV Training, seven hours.

Enrollment Dates: Fall and spring quarters

Program Length: Four quarters (approximate)

For more information, contact the Practical Nursing Program Technicians:

Brenda Alton, 253.680.7316, balton@bates.ctc.edu

Jackie Haynes, 253.680.7285, jhaynes@bates.ctc.edu

www.bates.ctc.edu/LPN

Associate of Technology Degree: 103 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5
175+	Level	Biology – Anatomy and Physiology	5

REQUIRED COURSEWORK			CREDITS
MEDICAL SURGICAL NURSING I			
PNUR	101	Principles of Medical Surgical Nursing	1
PNUR	102	Basic Nutrition	4
PNUR	103	Nursing Math/Pharmacology	6
PNUR	104	Principles of Geriatric Nursing	2
PNUR	105	Personal Vocational Relationships I	1
PNUR	106	Nursing Fundamentals I	7

MEDICAL SURGICAL NURSING II			CREDITS
PNUR	120	Principles of Microbiology/Infection Control	1
PNUR	121	Care of the Diabetic Patient	3
PNUR	122	Personal Vocational Relationships II	2
PNUR	123	Respiratory Care	3
PNUR	124	Orthopedics	2
PNUR	125	Growth and Development	2
PNUR	126	Cardiovascular Disorders	4
PNUR	127	Nursing Fundamentals II	4
PNUR	128	Clinical I	3
PNUR	129	Clinical Seminar	1

MEDICAL SURGICAL NURSING III			CREDITS
PNUR	130	Nursing Simulation Lab	2
PNUR	131	Mental Health Issues	2
PNUR	132	Newborn/Maternal/Women's	3
PNUR	133	Ophthalmology/Audio	1
PNUR	134	Perioperative Nursing	1
PNUR	135	Endocrine	1
PNUR	136	Gastrointestinal	2
PNUR	137	Genitourinary	2
PNUR	138	Clinical II	5
PNUR	139	Clinical Seminar	1

MEDICAL SURGICAL NURSING IV			CREDITS
PNUR	140	Oncology	3
PNUR	141	Pediatrics	2
PNUR	142	Neurology	3
PNUR	143	Reproductive/Breast Disorders	1
PNUR	144	Legal/Boundaries	1
PNUR	145	Clinical III	2
PNUR	146	Clinical Seminar	1
PNUR	147	Preceptorship	4

Special Fee: Washington State fees and licensure examination at program completion are approximately \$265.

Professional-Technical Education

This program provides a structured degree pathway in education for secondary and post-secondary professional-technical educators, providing them with an educational continuum toward a baccalaureate in education. The degree structure provides leadership and technical skills beyond those required for teaching certification. The curriculum is competency-based and is designed as a series of discreet, modularized extended learning competencies. This program is not offered as a fulltime career education program.

Prerequisites:

1. Applicants must be employed as a secondary or post-secondary professional-technical educator on a 50 percent or greater basis.
2. Approval from the dean of the Educator Training Center at Bates Technical College.

FACULTY

Elaine Kurlinski, 253.680.7230, ekurlinski@bates.ctc.edu

Associate of Applied Science-T Degree: 90 credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
ENGL&	101	English Composition I	5
100+	Level	Mathematics	5
100+	Level	Human Relations	5
100+	Level	Electives in Social Science/Humanities	5

REQUIRED COURSEWORK			CREDITS
EDU	102	Industrial Safety	1
EDU	104	Philosophy of Technical Education	3
EDU	105	Methods of Teaching	3
EDU	106	Occupational Analysis	3
EDU	107	Course Organization	3
EDU	201	Teaching Practicum I and	12
EDU	202	Teaching Practicum II	12
		or	
EDU	211	Administration Practicum I and	12
EDU	212	Administration Practicum II	12
EDU	220	Professional/Technical Education Capstone	5

Electives ñ Students choose 28 credits from approved electives list. 28

ELECTIVES LIST *			CREDITS
EDU	101	Introduction to School Law	3
EDU	108	Introduction to Professional/Technical Education	3
EDU	109	Information Literacy	1
EDU	221	Professional/Technical Specialization	12
EDU	222	Current Topics for Professional/Technical Educators	2
EDU	223	Industry-based Professional Development I	2
EDU	224	Industry-based Professional Development II	3
EDU	226	Student Development and Leadership Techniques	3
EDU	151	Abuse and Neglect of Children	1
EDU	228	Work-based Learning Coordination	3
EDU	229	Diverse Needs of Students	3
EDU	230	Career and Technical Education (CTE) Practicum	1
EDU	231	Advanced Teaching Methods	3
EDU	232	Portfolio Development	1
SOC	111	Understanding Diversity	5
PSYC&	100	General Psychology	5

*Other courses approved by the instructional dean.

Sheet Metal Technology

Bates offers the only program in the region that prepares students for apprenticeship employment in the sheet metal industry. Customer projects completed in the classroom, shop, and the field, provide students with the necessary foundational skills to succeed in this high demand and rewarding occupation. Instruction includes equipment operation, fabrication and installation of various ventilation systems, blueprint reading, computer-aided drafting, air distribution, and material handling. This is a pre-apprenticeship program for the Western Washington Sheet Metal Joint Apprenticeship Training Committee. Students who complete all required elements of the selected Sheet Metal Technology course offerings will be awarded direct entry into the Western Washington Sheet Metal JATC Local 66 building trades or residential apprenticeship program. Students will be placed at the end of the out of work list. Prior educational credits are recognized upon entrance into the apprenticeship.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Steve MacKay, 253.680.7254, smackay@bates.ctc.edu
www.bates.ctc.edu/SheetMetal

Associate of Technology Degree: 118 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
100+ Level	Human Relations	5
100+ Level	Communications	5
100+ Level	Mathematics	5

REQUIRED COURSEWORK		CREDIT
SHME 101	Introduction to Sheet Metal Technology	3
SHME 102	Metalworking Machines Technology	4
SHME 103	Fittings Fabrication I	7
SHME 104	Principles of Health and Safety	5
SHME 105	Materials Technology	3
SHME 106	Hand Tools and Equipment	4
SHME 107	Applied Math	5
SHME 108	Introduction to Drafting	2
SHME 109	Drafting Techniques	5
SHME 110	Layout Math	3
SHME 111	Technology of Seams and Locks	3
SHME 112	Fittings Fabrication II	8
SHME 201	Introduction to Architectural Sheet Metal	3
SHME 202	Introduction to Blueprint Reading	3
SHME 203	Blueprint Reading Applications	5
SHME 204	Layout Drafting II	3
SHME 205	Layout Drafting III	3
SHME 206	Complex Components Fabrication	5
SHME 207	Energy Codes	3
SHME 208	Duct Design and Air Balancing - Basics	5
SHME 209	Duct Design and Air Balancing - Advanced	5
SHME 210	Solar Heating	2
SHME 211	Commercial Projects	6
WBAS 101	Welding Basic	8

Certificate of Competency: 118 credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
90+	Level Human Relations	5
90+	Level Communications	5
90+	Level Mathematics	5

REQUIRED COURSEWORK		CREDITS
SHME 101	Introduction to Sheet Metal Technology	3
SHME 102	Metalworking Machines Technology	4
SHME 103	Fittings Fabrication I	7
SHME 104	Principles of Health and Safety	5
SHME 105	Materials Technology	3
SHME 106	Hand Tools and Equipment	4
SHME 107	Applied Math	5
SHME 108	Introduction to Drafting	2
SHME 109	Drafting Techniques	5
SHME 110	Layout Math	3
SHME 111	Technology of Seams and Locks	3
SHME 112	Fittings Fabrication II	8
SHME 201	Introduction to Architectural Sheet Metal	3
SHME 202	Introduction to Blueprint Reading	3
SHME 203	Blueprint Reading Applications	5
SHME 204	Layout Drafting II	3
SHME 205	Layout Drafting III	3
SHME 206	Complex Components Fabrication	5
SHME 207	Energy Codes	3
SHME 208	Duct Design and Air Balancing - Basics	5
SHME 209	Duct Design and Air Balancing - Advanced	5
SHME 210	Solar Heating	2
SHME 211	Commercial Projects	6
WBAS 101	Welding Basics	8

Sheet Metal Technology (continued)**Certificate of Training: 94 Credits****SHEET METAL TECHNICIAN**

GENERAL EDUCATION REQUIREMENTS		CREDITS
90+	Level Human Relations	5
90+	Level Communications	5
90+	Level Mathematics	5

REQUIRED COURSEWORK		CREDITS
SHME	101 Introduction to Sheet Metal Technology	3
SHME	102 Metalworking Machines Technology	4
SHME	103 Fittings Fabrication I	7
SHME	104 Principles of Health and Safety	5
SHME	105 Materials Technology	3
SHME	106 Hand Tools and Equipment	4
SHME	107 Applied Math	5
SHME	108 Introduction to Drafting	2
SHME	109 Drafting Techniques	5
SHME	111 Technology of Seams and Locks	3
SHME	112 Fittings Fabrication II	8
SHME	202 Introduction to Blueprint Reading	3
SHME	203 Blueprint Reading Applications	5
SHME	204 Layout Drafting II	3
SHME	205 Layout Drafting III	3
SHME	207 Energy Codes	3
SHME	208 Duct Design and Air Balancing - Basics	5
WBAS	101 Welding Basics	8

Certificate of Training: 42 Credits**SHEET METAL PRODUCTION SUPPORT**

REQUIRED COURSEWORK		CREDITS
SHME	102 Metalworking Machines Technology	4
SHME	103 Fittings Fabrication I	7
SHME	105 Materials Technology	3
SHME	106 Hand Tools and Equipment	4
SHME	107 Applied Math	5
SHME	111 Technology of Seams and Locks	3
SHME	112 Fittings Fabrication II	8
WBAS	101 Welding Basics	8

Certificate of Training: 44 Credits**SHEET METAL RESIDENTIAL INSTALLATIONS**

REQUIRED COURSEWORK		CREDITS
SHME	120 Introduction to Sheet Metal Technology	3
SHME	121 Principles of Health and Safety	2
SHME	122 Hand Tools and Equipment	3
SHME	123 Metalworking Machines Technology	2
SHME	124 Fittings Fabrication I	4
SHME	125 Applied Math	3
SHME	126 Technology of Seams and Locks	2
SHME	127 Prefabricated Components	2
SHME	128 Material Handling Technology	2
SHME	129 Wood Working Tools	1
SHME	130 Carpentry Installation	3
SHME	131 Air Properties Technology	1
SHME	132 Duct installation	3
SHME	133 Residential Venting Technology	2
SHME	134 Unit Operations	2
SHME	135 Code Principles	2
SHME	136 Gas Piping Technology	2
SHME	137 Duct Design Technology	3
SHME	138 Preventive Maintenance	2

Software Development

Instruction in the Software Development program includes designing, coding, and implementing software applications in a variety of programming languages: Unix, SQL, Java, C Sharp, C++ and Visual Basic,. In addition, students build skills in problem-solving, attention to detail, communication, and teamwork.

Enrollment Dates: Fall and spring quarters

Program Length: Six quarters (approximate)

FACULTY

Dan Achman, 253.680.7336, dachman@bates.ctc.edu

Judith Graham, 253.680.7335, jagraham@bates.ctc.edu

Associate of Technology Degree: 105 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	10

REQUIRED COURSEWORK			CREDITS
CS&	131	Computer Science I C++	5
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL I	5
SOFT	101	Computer Concepts	5
SOFT	102	Programming Fundamentals	5
SOFT	103	Operating Systems	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
SOFT	132	C++II	5
SOFT	207	Dynamic Web Pages	5
SOFT	208	Principles of Systems Analysis and Design	5
SOFT	209	Emerging Technologies	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5

PROGRAMMING LANGUAGE

Students must choose one of the options listed below

Option A

SOFT	205	Visual Basic I	5
SOFT	206	Visual Basic II	5

Option B

CS&	141	Computer Science I JAVA	5
SOFT	142	Programming in JAVA II	5

Students must choose one of the following options:

Option D

SOFT	290	Capstone Project	5
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Option E

SOFT	291	Lab-based Learning Experience	5
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Option F

SOFT	296	Work-based Learning Experience and	4
SOFT	297	Work-based Learning Seminar	1
		or	
SOFT	298	Work-based Learning – No Seminar	5

Associate of Applied Science - Transfer Degree: 110 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH	104	Statistical Analysis or equivalent	5
MATH	105	College Algebra or equivalent	5
ENGL&	101	College Composition	5
100+	Level	Social Sciences (Sociology or Psych)	5
100+	Level	Humanities (Am. Sign Language, Art, or History)	5

REQUIRED COURSEWORK

REQUIRED COURSEWORK			CREDITS
CS&	131	Computer Science I C++	5
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL I	5
SOFT	101	Computer Concepts and Technologies	5
SOFT	102	Programming Fundamentals	5
SOFT	103	Operating Systems	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
SOFT	132	C++II	5
SOFT	207	Dynamic Web Pages	5
SOFT	208	Principles of Systems Analysis and Design	5
SOFT	209	Emerging Technologies	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5

PROGRAMMING LANGUAGE

Students must choose one of the options listed below

Option A

SOFT	205	Visual Basic	5
SOFT	206	Visual Basic	5

Option B

CS&	141	Computer Science I JAVA	5
SOFT	142	Programming in JAVA II	5

Students must choose one of the following options:

Option D

SOFT	290	Capstone Project	5
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Option E

SOFT	291	Lab-based Learning Experience	5
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Option F

SOFT	296	Work-based Learning Experience and	4
SOFT	297	Work-based Learning Seminar	1
		or	
SOFT	298	Work-based Learning – No Seminar	5

Software Development (continued)**Certificate of Competency: 60 Credits****BUSINESS APPLICATION DEVELOPMENTS**

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL I	5
DATA	105	Principles of System Analysis and Design	5
SOFT	101	Computer Concepts and Technologies	5
SOFT	102	Programming Fundamentals	5
WEB	101	Microsoft Office Applications	5

PROGRAMMING LANGUAGE			CREDITS
Students must choose one of the options listed below.			

Option A

SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5

Option B

SOFT	205	Visual Basic	5
SOFT	206	Visual Basic	5

Option C

CS&	131	Computer Science I C++	5
SOFT	132	C++II	5

Option D

CS&	141	Computer Science I JAVA	5
SOFT	142	Programming in JAVA II	5

Students must choose at least one of the following options:

Option E

SOFT	290	Capstone Project	5
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Option F

SOFT	291	Lab-based Learning Experience	5
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Option G

SOFT	296	Work-based Learning Experience and	4
SOFT	297	Work-based Learning Seminar	1
		or	
SOFT	298	Work-based Learning – No Seminar	5

Vehicle Parts/Accessories Marketing

Instruction takes place in a warehouse environment and in a fully-operational vehicle parts and accessories store open to the general public, giving students the opportunity to gain hands-on experience in inventory merchandise, wholesale and retail customers and working with vehicle parts vendors. Employment opportunities may include inventory and stock specialist, vehicle parts counter person, warehouse and distribution specialist, inventory clerk, shipping and receiving clerk, shipping documentation specialist, stock merchandiser, procurement specialist, counter and accessories sales, parts managers, materials movement worker, forklift operator, order puller and loading dock worker.

Enrollment Dates: Every quarter including summer
Program Length: Four quarters (approximate)

FACULTY

Jeff Lovin, 253.680.7497, jlovin@bates.ctc.edu

Certificate of Competency: 89 Credits

GENERAL EDUCATION REQUIREMENTS	CREDITS
90+ Level Human Relations	5
90+ Level Communications	5
90+ Level Mathematics	5

REQUIRED COURSEWORK	CREDITS
VPM 101 Applied Math	4
VPM 102 Safety Principles	3
VPM 103 Environmental Protection	1
VPM 104 Introduction to Vehicle Parts Merchandising	3
VPM 105 Forklift Operation	1
VPM 106 Material Movement	2
VPM 107 Storage and Distribution	5
VPM 108 Shipping and Receiving	5
VPM 110 Principles of Inventory Control	5
VPM 111 Stock Merchandising	5
VPM 112 Stock/Product Order	4
VPM 113 Automotive Parts Systems	5
VPM 114 Product Research Systems	5
VPM 115 Principles of Salesmanship	5
VPM 116 Retail Point of Sale	3
VPM 117 Returns, Exchanges, and POs	4
VPM 119 Principles of Management	5
VPM 120 Employment Preparation	3
VPM 121 Retail Applications * and	3
VPM 122 Warehouse Applications*	3

*This course may be substituted with a work-based learning component.

Certificate of Training: 25 Credits

INVENTORY/STOCK SPECIALIST	CREDITS
REQUIRED COURSEWORK	
VPM 101 Applied Math	4
VPM 102 Safety Principles	3
VPM 103 Environmental Protection	1
VPM 104 Introduction to Vehicle Parts Merchandising	3
VPM 110 Principles of Inventory Control	5
VPM 111 Stock Merchandising	5
VPM 112 Stock/Product Order	4

Certificate of Training: 39 Credits

VEHICLE PARTS COUNTER PERSON	CREDITS
REQUIRED COURSEWORK	
VPM 101 Applied Math	4
VPM 102 Safety Principles	3
VPM 103 Environmental Protection	1
VPM 104 Introduction to Vehicle Parts Merchandising	3
VPM 113 Automotive Parts Systems	5
VPM 114 Product Research Systems	5
VPM 116 Retail Point of Sale	3
VPM 117 Returns, Exchanges, and POs	4
VPM 119 Principles of Management	5
VPM 120 Employment Preparation	3
VPM 121 Retail Applications*	3

*This course may be substituted with a work-based learning component.

Certificate of Training: 27 Credits

WAREHOUSE/DISTRIBUTION SPECIALIST	CREDITS
REQUIRED COURSEWORK	
VPM 101 Applied Math	4
VPM 102 Safety Principles	3
VPM 103 Environmental Protection	1
VPM 104 Introduction to Vehicle Parts Merchandising	3
VPM 105 Forklift Operation	1
VPM 106 Material Movement	2
VPM 107 Storage and Distribution	5
VPM 108 Shipping and Receiving	5
VPM 122 Warehouse Applications*	3

*This course may be substituted with a work-based learning component.

Web Development

Instruction in this program combines a unique blend of design and development technologies using a hands-on approach. Students learn to use industry software and development tools to create, implement and maintain static and dynamic web sites. A web developer is responsible for the site design and functionality that make surfing the Internet fun and easy. Employment opportunities include positions as web designers, specialists, technicians, and developers.

Enrollment Dates: Every quarter including summer
Program Length: Six quarters (approximate)

FACULTY

Ingrid Smith, 253.680.7332, ismith@bates.ctc.edu
 www.bates.ctc.edu/WebDeveloper

Associate of Technology Degree: 105 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	10

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL	5
SOFT	101	Computer Concepts	5
SOFT	102	Programming Fundamentals	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5
WEB	103	Operating Systems	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
WEB	201	Internet Technologies	5
WEB	202	Web Authoring Editor	5
WEB	203	Photoshop for the Web	5
WEB	204	Web Site Animation using Flash	5
WEB	205	Web Site Design	5
WEB	206	Technology Topic	5
SOFT	207	Dynamic Web Pages	5

Students must complete either C-Sharp I and II or Visual Basic I and II (Visual Basic is an option if not completing C-Sharp)

Software Development Elective			CREDITS
SOFT	205	Visual Basic I	5
SOFT	206	Visual Basic II	5

Students must choose one of the following options:

Option A			
WEB	290	Capstone Project	5
Option B			
WEB	291	Lab-based Learning Experience	5
Option C			
WEB	296	Work-based Learning Experience and	4
WEB	297	Work-based Learning Seminar	1
or			
WEB	298	Work-based Learning – No Seminar	5

Associate of Applied Science-T Degree: 120 Credits

WEB DEVELOPMENT			CREDITS
GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH	104	Statistical Analysis or equivalent	5
MATH	105	College Algebra or equivalent	5
ENGL&	101	College Composition	5
100+	Level	Social Sciences (Sociology or Psych)	5
100+	Level	Humanities (Am. Sign Language, Art, or History)	5

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL	5
SOFT	101	Computer Concepts	5
SOFT	102	Programming Fundamentals	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5
WEB	103	Operating Systems	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
WEB	201	Internet Technologies	5
WEB	202	Web Authoring Editor	5
WEB	203	Photoshop for the Web	5
WEB	204	Web Site Animation using Flash	5
WEB	205	Web Site Design	5
WEB	206	Technology Topic	5
SOFT	207	Dynamic Web Pages	5
CS&	141	Computer Science I-JAVA	5
SOFT	142	Programming in JAVA II	5

Students must complete either C-Sharp I and II or Visual Basic I and II (Visual Basic is an option if not completing C-Sharp)

Software Development Elective

SOFT	205	Visual Basic I	5
SOFT	206	Visual Basic II	5

Students must choose one of the following options:

Option A			
WEB	290	Capstone Project	5
Option B			
WEB	291	Lab-based Learning Experience	5
Option C			
WEB	296	Work-based Learning Experience and	4
WEB	297	Work-based Learning Seminar	1
or			
WEB	298	Work-based Learning – No Seminar	5

Certificate of Competency: 75 Credits

WEB TECHNICIAN			CREDITS
GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
SOFT	101	Computer Concepts	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5
WEB	103	Operating Systems	5
WEB	201	Internet Technologies	5
WEB	202	Web Authoring Editor	5
WEB	203	Photoshop for the Web	5
WEB	204	Web Site Animation using Flash	5
WEB	205	Web Site Design	5
WEB	206	Technology Topic	5

Students must choose one of the following options:

Option A			
WEB	290	Capstone Project	5
Option B			
WEB	291	Lab-based Learning Experience	5
Option C			
WEB	296	Work-based Learning Experience and	4
WEB	297	Work-based Learning Seminar	1
or			
WEB	298	Work-based Learning - No Seminar	5

Welding

Students prepare for apprenticeship employment as welders, filling positions in industries including shipbuilding, industrial construction, energy fields, sheet metal, and auto body. Extensive practical training in all aspects of welding is included as students work in the shop on a variety of welding projects. Upon completion of the welding competencies, students are encouraged to take the certification tests for the American Welding Society and the Washington Association of Building Officials. This program also provides extended learning for persons previously or currently employed in these professions. Note: Through an Opportunity Grant, special tuition and book funding is available to assist low-income adult students entering this program.

Enrollment Dates: Fall and spring quarters

Program Length: Seven quarters (approximate)

FACULTY

Clinton Griffee, 253.680.7456, cgriffee@bates.ctc.edu

Rick Huston, 253.680.7454, rhuston@bates.ctc.edu

Associate of Technology Degree: 119 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
WELD	101	Safety Principles	2
WELD	102	Fabrication Plans	4
WELD	103	Pre and Post-welding Activities	2
WELD	104	Oxyacetylene Cutting	3
WELD	105	Introduction to Shielded Metal Arc Welding	5
WELD	106	Welding Math	5
WELD	107	Brazing and Soldering	1
WELD	108	Full Penetration Welds – Flat/Horizontal	5
WELD	109	Full Penetration Welds – Vertical/Overhead	5
WELD	110	Full Penetration Welds – Open Root	5
WELD	111	Introduction to Gas Metal Arc Welding	3
WELD	112	Gas Metal Arc Welding – Full Penetration	4
WELD	113	Gas Metal Arc Welding – Aluminum	5
WELD	114	Introduction to Flux Core Arc Welding	4
WELD	115	Flux Core Arc Welding – Full Penetration	5
WELD	116	Carbon Arc Cutting	5
WELD	201	Introduction to Gas Tungsten Arc Welding	5
WELD	202	Gas Tungsten Arc Welding – Full Penetration	5
WELD	203	Gas Tungsten Arc Welding – Aluminum	5
WELD	204	Welding Certification Testing – SMAW	4
WELD	205	Advanced Welding Applications – Pipe/SMAW	5
WELD	206	Advanced Welding Applications – Pipe/GTAW	5
WELD	207	Welding Certification Testing – Flux Core	5
WELD	208	Non-Destructive Testing	1
WELD	209	Forklift Training	1
WELD	210	Advanced Welding Applications - Project	5

Certificate of Competency: 102 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK/CREDITS

WELD	101	Safety Principles	2
WELD	102	Fabrication Plans	4
WELD	103	Pre and Post-welding Activities	2
WELD	104	Oxyacetylene Cutting	3
WELD	105	Introduction to Shielded Metal Arc Welding	5
WELD	106	Welding Math	5
WELD	107	Brazing and Soldering	1
WELD	108	Full Penetration Welds – Flat/Horizontal	5
WELD	109	Full Penetration Welds – Vertical/Overhead	5
WELD	110	Full Penetration Welds – Open Root	5
WELD	111	Introduction to Gas Metal Arc Welding	3
WELD	112	Gas Metal Arc Welding – Full Penetration	4
WELD	113	Gas Metal Arc Welding – Aluminum	5
WELD	114	Introduction to Flux Core Arc Welding	4
WELD	115	Flux Core Arc Welding – Full Penetration	5
WELD	116	Carbon Arc Cutting	5
WELD	201	Introduction to Gas Tungsten Arc Welding	5
WELD	202	Gas Tungsten Arc Welding – Full Penetration	5
WELD	203	Gas Tungsten Arc Welding – Aluminum	5
WELD	204	Welding Certification Testing – SMAW	4
WELD	205	Advanced Welding Applications – Pipe/SMAW	5

Certificate of Training: 26 Credits

WELDER - Level I

GENERAL EDUCATION REQUIREMENTS			CREDITS
WELD	101	Safety Principles	3
WELD	102	Fabrication Plans	4
WELD	103	Pre and Post-welding Activities	2
WELD	104	Oxyacetylene Cutting	3
WELD	105	Welding Math	2
WELD	106	Brazing and Soldering	1
WELD	107	Introduction to Shielded Metal Arc Welding	3
WELD	108	Full Penetration Welds – Flat/Horizontal	3
WELD	109	Full Penetration Welds – Vertical/Overhead	5

Certificate of Training: 29 Credits

WELDER - Level II

GENERAL EDUCATION REQUIREMENTS			CREDITS
WELD	110	Full Penetration Welds – Open Root	5
WELD	111	Introduction to Gas Metal Arc Welding	3
WELD	112	Gas Metal Arc Welding – Full Penetration	4
WELD	113	Gas Metal Arc Welding – Aluminum	3
WELD	114	Introduction to Flux Core Arc Welding	4
WELD	115	Flux Core Arc Welding – Full Penetration	5
WELD	116	Carbon Arc Cutting	5

Special Fees: Washington Association of Building Officials; Plates \$135; Pipes \$160; American Welding Society, \$260.

Wireless Voice & Data Communications

Students prepare for employment as technicians in the wireless communications industry. Few technologies have grown and evolved as quickly as wireless communications. Rapid growth combined with advances in technology creates excellent employment opportunities in this field. Students learn how high-speed, high-quality voice, data and video is exchanged among devices located anywhere in the world via optical fibers, telecommunications cabling, telephone, cellular and satellite equipment and broadcast and wireless networks. Students also prepare for industry certifications and federal licenses including the Federal Communications Commission, Cisco CCNA, Network Cabling Specialist and Certified Fiber Optic Technician.

Enrollment Dates: Every quarter including summer

Program Length: Six quarters (approximate)

FACULTY

Laura Robertson, 253.680.7358, lrobertson@bates.ctc.edu
www.bates.ctc.edu/WirelessTechnology

Associate of Technology Degree: 100 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ETECH	101	Introduction to Electronics	2
ETECH	102	DC Circuits	5
ETECH	103	AC Circuits	5
ETECH	104	Analog Circuits	5
ETECH	105	Digital Circuits	5
ETECH	106	Microcontrollers	5
INFO	101	Computer Applications Essentials	5
WIRE	201	Telecommunications Network Cabling Systems	5
WIRE	202	Fiber Optics	5
WIRE	203	FCC Licensure Prep I	5
WIRE	204	FCC Licensure Prep II	5
WIRE	205	Wireless/RF Communications	4
WIRE	206	Wireless Personal Area Networks	2
WIRE	207	Wireless Local Area Networks	3
WIRE	208	Wireless Broadband Networks	4

Students must choose 20 credits from the elective list.

Certificate of Competency: 78 Credits

WIRELESS VOICE AND DATA COMMUNICATIONS

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ETECH	101	Introduction to Electronics	2
ETECH	102	DC Circuits	5
ETECH	103	AC Circuits	5
ETECH	104	Analog Circuits	5
ETECH	105	Digital Circuits	5
ETECH	106	Microcontrollers	5
INFO	101	Computer Applications Essentials	5
WIRE	201	Telecommunications Network Cabling Systems	5
WIRE	202	Fiber Optics	5
WIRE	205	Wireless/RF Communications	4
WIRE	206	Wireless Personal Area Networks	2
WIRE	207	Wireless Local Area Networks	3
WIRE	208	Wireless Broadband Networks	4

Students must choose eight credits from the electives list.

ELECTIVES LIST			CREDITS
WIRE	209	Cisco Fundamentals of Wireless LANs	5
WIRE	210	Introduction to RF Communications	2
WIRE	211	Amplitude Modulation	3
WIRE	212	Single Sideband and Frequency Modulation	4
WIRE	213	Transmission Lines and Antennas	2
WIRE	214	Microwave, Telephony, and Cellular	2
WIRE	215	Data and Networking Fundamentals	2
WIRE	216	Advanced Communications Principles2	
WIRE	236	RF Communications Lab5	
WIRE	237	Telecommunications Lab5	
WIRE	249	Job Search and Preparation3	
WIRE	290	Independent Study I	5
WIRE	291	Independent Study II	5
WIRE	296	Work-based Learning Experience	1-15
WIRE	297	Work-based Learning Seminar	1-2
INFO	111	Introduction to Operating Systems (O/S)	5
INFO	112	O/S Applications	5
INFO	109	PC Hardware Maintenance	3
INFO	110	Hardware Applications	3
INFO	201	Introduction to Cisco Internetworking	5
INFO	202	Introduction to Cisco Routing Technology	5
INFO	203	Cisco Advanced Routing/Switching	5
INFO	204	Cisco Advanced Networks	5

5 CHAPTER

Course Descriptions

Degree & Certificate Course Descriptions

	CREDITS		CREDITS		CREDITS
ACCOUNTING/BOOKKEEPING					
ACCT 101 MS Excel I	5	ACCT 113 Intermediate Bookkeeping II	5	ACCT 212 Principles of Accounting II	5
Students are introduced to the use of spreadsheets in business applications. They explore the use of formulas and functions, charting and tables, and using pivot tables to manipulate data. PREREQUISITE: Acct 103, Acct 104, Acct 105, Acct 106 or instructor permission		This course introduces the theory and practice of maintaining manual accounting records, emphasizing property and equipment, intangible assets, corporate stock, retained earnings, dividends, and bonds. PREREQUISITE: Acct 111		This course is a continuation of ACCT 210 with emphasis on internal control, long-term assets, liabilities and debt, statement of cash flows, and financial statement analysis.	
ACCT 102 Computer Basics	2	ACCT 115 Intermediate Bookkeeping III	5	ACCT 214 Principles of Accounting Simulation Lab	3
This course introduces students to computer and internet concepts, including hardware, software, file management, and data security.		This course introduces the theory and practice of maintaining manual accounting records emphasizing management decision-making and the manufacturing process. PREREQUISITE: Acct 113 CONCURRENT: Acct 117		This course provides instructional activities that support material covered in ACCT 212 in a supervised lab environment.	
ACCT 103 Introduction to Bookkeeping for Sole Proprietor	3	ACCT 117 Intermediate Bookkeeping Lab	3	ACCT 217 Business Law	5
Students are introduced to the accounting cycle and basic bookkeeping concepts for a business organized as a sole proprietorship. CONCURRENT: Acct 104, Acct 106		This course provides instructional activities that support material covered in ACCT 113 and ACCT 115 in a supervised lab environment. CONCURRENT: Acct 115		This course is an introduction to key characteristics of business law including contracts, sales, agency and consumer protection, property, commercial paper, and business technology.	
ACCT 104 Introduction to Corporate Bookkeeping I	3	ACCT 120 Beginning Payroll	5	ACCT 220 Advanced Payroll	5
Students are introduced to the application of basic bookkeeping for a corporation. They review basic source documents and identify concepts and practices related to financial statements for a business organized as a corporation. CONCURRENT: Acct 103, Acct 106		Students learn how to calculate employee payroll earnings based on an hourly, salary, piece-rate, or commission basis. The determination of deductions for federal and state payroll taxes and preparation of payroll checks are also introduced.		Practical application of preparing payroll accounting entries, calculating and maintaining employee benefit date, and learning how to prepare all federal and state payroll tax records and forms is the focus. Acct 120	
ACCT 105 Introduction to Corporate Bookkeeping II	3	ACCT 201 MS Excel II	5	ACCT 223 Advance Payroll Business Simulation Lab	3
Students receive initial training in preparing end of fiscal period adjustments and preparation of worksheets and financial statements. PREREQUISITE: Acct 103, Acct 104		A continuation of MS Excel I, students explore the use of data tables, amortization tables, data consolidation, links, what-if analysis, templates, styles, macros, and the web. PREREQUISITE: Acct 101 or Instructor permission		This course provides instructional activities that support material covered in ACCT 220 in a supervised lab environment.	
ACCT 106 Introduction to Bookkeeping Business Simulation Lab	3	ACCT 205 Computerized Accounting I	5	ACCT 225 Federal Income Tax Fundamentals	5
This course provides instructional activities that support material covered in ACCT 103 and ACCT 105 in a supervised lab environment. CONCURRENT: Acct 103, Acct 104		Practical application of bookkeeping concepts in a computerized accounting environment using QuickBooks Pro software is the focus. Students learn the operations, commands, and functions related to customers, vendors, banking, and basic reporting. Acct 103, Acct 104, Acct 105, Acct 106 or Instructor permission		Students analyze income tax law as it relates to individual tax returns, determine filing status and dependent exemptions. Students also identify sources of income and analyze expenses and deductions in order to prepare basic income tax returns for individuals using actual IRS forms and associated schedules. Students research tax situations using common tax references.	
ACCT 108 MS Word I	5	ACCT 207 Computerized Accounting II	5	ACCT 291 Practical Applications	1-18
This course is an introduction to basic word processing skills, including document merge, table creation, and column formatting. PREREQUISITE: Acct 103, Acct 104, Acct 105, Acct 106 or Instructor permission		A continuation of ACCT 205 covering advanced concepts using QuickBooks Pro software, students learn to create new companies and manage inventories for a merchandising business, and payroll. Acct 205.		This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ACCT 109 Electronic Business Math/Calculator	3	ACCT 210 Principles of Accounting I	5	ACCT 292 Independent Projects	1-5
Students learn to apply various business math concepts and manipulations using an electronic calculator.		This course is an introduction to the fundamentals of accounting with emphasis on analyzing and recording transactions, accounting for a merchandising business, and preparing a balance sheet and income statements. PREREQUISITE: Acct 115 or instructor permission		This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ACCT 111 Intermediate Bookkeeping I	5			ACCT 293 Independent Projects	1-5
This course introduces the theory and practice of maintaining manual accounting records and the use of use of various journals, ledgers, and accounts that are standard to industry. Valuation of receivables, inventory, notes payable and receivable are emphasized. PREREQUISITE: Acct 103, Acct 104, Acct 105, Acct 106 or instructor permission				This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	

CREDITS

ACCT 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ACCT 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

ACCT 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

ACCT 298 Work-based Learning - No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

ADMINISTRATIVE MEDICAL ASSISTANT

ADMA 101 Introduction to the Health Care Profession 5

This course is an introduction to the basic concepts of the administrative medical assistant profession with emphasis on professional behaviors as they relate to the patient-physician-medical assistant relationship. Students learn basic 10-key calculator skills. CPR and first aid certification is also included.

ADMA 102 Introduction to Medical Terminology 4

This course is an introduction to the first of a series of medical terminology courses associated with anatomy and understanding of disease. Students learn basic prefixes, suffixes, combining forms, and medical abbreviations.

ADMA 103 Medical Transcription I 3

Students are introduced to the processes used to transcribe a variety of medical correspondence and reports with emphasis on the development of proofreading and editing skills.

ADMA 104 Medical Office Procedures I 3

Students complete practical applications related to a variety of administrative medical tasks to include appointment scheduling, internet research, referral process for treatment, and records management.

CREDITS

ADMA 105 Administrative Medical Procedures I 4

Students are provided an introduction to the general duties of the medical assistant in the health care setting: ethical and legal issues, telephone and electronic communication use, and computer use in the medical office. Prerequisite required: ADMA 101

ADMA 106 Medical Terminology II 4

Students learn medical terminology with an emphasis on the integumentary, musculoskeletal, nervous, cardiovascular, and respiratory systems. Prerequisite required: ADMA 102

ADMA 107 Medical Office Procedures II 3

Students complete practical applications related to a variety of administrative medical tasks to include: generation of reports, creating CMS-1500 forms for billing, editing drafts of documents, message taking, completing incident report, and preparing orders for supplies. Prerequisite required: ADMA 101 AND ADMA 104

ADMA 108 Medical Transcription II 4

Students expand their research/reference skills, improve and apply proofreading and editing skills while transcribing progress notes, histories and physicals, operative reports, consultations, and discharge summaries. Prerequisite required: ADMA 102 AND ADMA 103

ADMA 109 Administrative Medical Procedures II 4

Students are provided training in the areas of patient reception, appointment scheduling, written communication, mail processing, handling medical records, and filing. Prerequisite required: ADMA 101, ADMA 102, AND ADMA 105

ADMA 110 Medical Terminology III 4

Students learn medical terminology with an emphasis on the digestive, urinary, female and male reproductive, and blood systems. Prerequisite required: ADMA 102

ADMA 111 Medical Insurance 4

Students learn medical insurance terminology and processes for billing a variety of insurance types. They learn specifics of Medicaid, Medicare, CHAMPUS, L & I, and commercial insurance and analyze agency payment vouchers. Secondary insurance billing requirement, rebilling, and electronic billing are also included. Prerequisite required: ADMA 101 AND ADMA 105

ADMA 112 Medical Data Base 2

Students learn to use a medical practice management data base and practice a variety of record maintenance functions common to a medical facility: scheduling, billing, account balancing, and financial report analysis. Prerequisite required: ADMA 101 AND ADMA 105

CREDITS

ADMA 113 Administrative Medical Procedures III 4

Students are introduced to administrative skills relating to: health information management, privacy issues (HIPAA), professional fees, banking procedures, and medical practice finances. Prerequisite required: ADMA 101, ADMA 105, AND ADMA 109

ADMA 114 Medical Terminology IV 4

Students learn medical terminology with an emphasis on the sense organs, endocrine, lymph and immune systems, and radiology, and pharmacology. Prerequisite required: ADMA 102

ADMA 115 Coding 5

This course is an introduction to the coding of diagnoses and procedures of health care records with emphasis on coding for insurance reimbursement. Students learn to use both CPT and ICD-9-CM classification manuals and reference materials. Prerequisite required: ADMA 102 AND either ADMA 106, ADMA 110, or ADMA 114

ADMA 116 Medical Transcription III 4

This course offers advanced study and practice in medical transcription with increased focus on complex reports. Prerequisite required: ADMA 102, ADMA 103, ADMA 106, ADMA 108, AND ADMA 110

ADMA 117 Independent Study - Medical Terminology V 4

This course offers advanced study in the medical terminology applicable to the structure, function, and diseases of the human body. Prerequisite required: ADMA 102, AND either ADMA 106, ADMA 110, or ADMA 114.

ADMA 120 Practical Applications 3

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. This project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ADMA 296 Work-based Learning Experience 2

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

ADMA 297 Work-based Learning Seminar 1

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

CREDITS

ADMA 298 Work-based Learning – No Seminar 2

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

ADMINISTRATIVE OFFICE ASSISTANT

AOA 101 Professional Communications 1
Students learn verbal and written communication skills that are required within the business and office environment.

AOA 102 Professional Office Procedures 5
This course is an introduction to duties and responsibilities found within the office administrative professions including the investigation of career paths, the development of career goals, and the exploration of customer service philosophies.

AOA 103 Telecommunications 1
Skills related to customer service, arrangement of business travel, operation of multi-line phone systems and facsimile equipment are introduced.

AOA 104 Office Lead 1
Students develop skills in leadership and supervision. They learn to conduct timed writes, operate image processing devices, plan activities, schedule speakers, mentor new students, and organize and schedule cleaning of classroom areas.

AOA 105 Keyboarding I 5
This course is an introduction to basic typewriting and computer keypad data entry skills.

AOA 106 MS Windows 3
This course is an introduction to MS Windows where students learn to identify computer system components, use Windows software, and manage digital files.

AOA 107 MS Outlook 4
Students learn to manage calendars and utilize basic and advanced features of email systems.

AOA 108 Records Management 4
Students learn to perform records management activities at the level required within the administrative office assistant industry.

AOA 109 Business Ethics 2
Concept of ethics and its role in business are presented with emphasis on the examination of ethical situation and the creation of steps to solve the issue.

AOA 110 MS Word I 5
This course is an introduction to basic word processing skills using MS Word.

CREDITS

AOA 120 Keyboarding II 5
Students continue to enhance typewriting/keyboarding and keypad data entry skills and increase their keyboarding speed and accuracy.

AOA 121 MS Word II 3
A continuation of the concepts introduced in AOA 110, students learn more advanced word processing skills.

AOA 122 Business Grammar I 2
This course is an introduction to basic grammar including parts of speech and writing grammatically correct sentences.

AOA 123 Business Documentation 5
Written communication skills required within the business and office environment are developed.

AOA 124 Business Presentations 3
Business meeting structure, conduct, and protocols, including meeting facilitator's responsibilities are emphasized.

AOA 201 Beginning Accounting 5
This course is an introduction to basic accounting and bookkeeping duties.

AOA 202 Accounting Software 3
Students learn to use commercially available accounting software packages such as Quickbooks or timeslips to maintain books and business records.

AOA 203 MS Excel I 3
Students learn to create, edit, maintain, and print spreadsheets and data sheets and create and edit macros.

AOA 204 MS PowerPoint 3
This course is an introduction to presentation software that is used to create computer-based slide shows.

AOA 205 MS Access I 3
This course is an introduction to Microsoft Access with emphasis on the acquisition of database maintenance skills.

AOA 206 Voice Recognition Software 2
This course is an introduction to voice recognition software with emphasis on the skills required to use this software for word processing purposes.

AOA 220 Keyboarding III 4
Students learn enhance typewriting/keyboarding and keypad data entry skills and increase their keyboarding speed and accuracy.

AOA 222 Business Grammar II 2
Students learn more advanced concepts of writing business correspondence including the importance of spelling, punctuation, and editing skills.

CREDITS

AOA 223 MS Excel II 3
Students learn advanced functions such as graphing, working with multiple spreadsheets, and formatting and printing spreadsheets and data sheets.

AOA 224 Desktop Publishing 3
Students are introduced to popular desktop publishing software such as MS Publisher and MS FrontPage and acquire desktop publishing skills.

AOA 225 MS Access II 3
Students learn to design and create databases to meet data collection and reporting requirements normally associated with business operations.

AOA 234 Employment Preparation 1
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

AOA 240 Independent AOA Project 2
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.

AOA 291 Practical Applications 1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AOA 292 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AOA 296 Work-Based Learning Experience 1
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

AOA 297 Work-Based Learning Seminar 1
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

AOA 298 Work-Based Learning Experience – No Seminar 2
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

ARCHITECTURAL ENGINEERING**ARCH 101 Introduction to Architectural Engineering 2**

Students are introduced to the field of architectural drafting and design: overview of the industry and what it has to offer and the different job opportunities and what each discipline contributes to the industry.

ARCH 102 Blueprint Reading 3

Students learn to interpret architectural drawings using print reading skills and how to correct engineering plans using plan checking guidelines.

ARCH 103 Technical Math I 5

Students learn and apply various fundamental math concepts to solve problems common to architecture including the skills necessary to operate industry measurement devices and apply algebraic concepts.

ARCH 104 International Residential Codes I 3

This course is an introduction to regulatory requirements of the International Building Code. Students learn the purpose, organization and content, and the building permit process.

ARCH 105 Energy Codes I 2

Students are introduced to the Washington State Energy Code with emphasis on the insulation values of individual building components and how to show compliance using the Prescriptive Path Option.

ARCH 106 Technical Math II 5

A continuation of the concepts introduced in ARCH 103, students continue to learn and apply various math concepts to solve problems common to architecture and engineering including calculations using architectural units. Area and volumetric calculations are used on design situations, and trigonometry is applied to derive solutions to triangulation problems.

ARCH 107 Fundamentals of Drafting 5

Students are introduced to drafting basics: lettering styles, use of scales and templates, drafting equipment, and tool operation. Drafting standards and how to draw plans using a variety of graphic communication techniques are also included.

ARCH 108 Introduction to Computer Aided Drafting 5

From document management to design drafting, students are introduced to the concepts and practices used with computer aided drafting. Students learn about coordinate systems, drawing commands, how to apply drawing aids, and edit drawings. Basic text and dimensioning commands plus basic print/plotting are covered.

CREDITS

ARCH 109 Site Plans 3

Simulated and actual real life projects are used for practical training of the design of architectural site plans. All requirements for building department approval for construction permits are covered in detail.

ARCH 110 Floor Plans 3

Simulated and actual real life projects are used for practical training of the design of architectural floor plans. All requirements for building department approval for construction permits are covered in detail.

ARCH 111 Elevations 3

Simulated and actual real life projects are used for practical training of the design of architectural elevation plans. All requirements for building department approval for construction permits are covered in detail.

ARCH 112 Floor Framing Plans 3

Simulated and actual real life projects are used for practical training of the design of floor framing plans. All requirements for building department approval for construction permits are covered in detail.

ARCH 113 Roof Framing Plans 3

Simulated and actual real life projects are used for practical training of the design of roof framing plans. All requirements for building department approval for construction permits are covered in detail.

ARCH 114 Foundation Plans 3

Simulated and actual real life projects are used for practical training of the design of foundation plans. All requirements for building department approval for construction permits are covered in detail.

ARCH 115 Sections and Details 3

Simulated and actual real life projects are used for practical training of the design of architectural sections and details on plans. All requirements for building department approval for construction permits are covered in detail.

ARCH 116 Electrical, Mechanical and Plumbing Plans 3

Simulated and actual real life projects are used for practical training of the design of electrical, mechanical, and plumbing plans. All requirements for building department approval for construction permits are covered in detail.

ARCH 201 American with Disabilities Requirements 2

Students are introduced to requirements of the American with Disabilities Act and the reference and applications of the ADA requirements to architectural documents.

CREDITS

ARCH 202 Energy Codes II 2

Students learn the Component Performance Option of showing compliance with the Washington State Energy Code. Building envelope and lighting compliance to the Non-residential Building Energy Code are also covered in this class.

ARCH 203 International Building Code 5

Students learn about the International Building Code and its reference and application to architectural documents.

ARCH 204 Intermediate Computer Aided Drafting 5

Students learn more advanced CAD concepts of text, dimensioning, layering, and how to create and use symbols. X-Ref and layout space are also covered in this class.

ARCH 205 Construction Estimating 4

Manual and computer estimating are applied to construction projects which prepares students to manage products, materials, and labor.

ARCH 206 Strength of Materials 5

Statics (forces in equilibrium) is covered to give students an understanding of forces and the reactions of these forces in the design of structures. Students learn how to determine loads and apply structural design requirements for framing member sizing through the use of trade texts.

ARCH 207 Technical Writing/ Construction Specifications 3

Students study the use of construction documents, organizational formats used in construction, and the interpretation of construction documents. Industry-standard construction document specifications for materials, construction, practices, procedures and authorities are also introduced. Students learn the construction process; contract types; the modifications substitution process, rights, duties, and responsibilities of the contract parties; and contract provisions.

ARCH 208 Structural Engineering 5

Students learn how to perform stress analysis of structural components and engineer components for use in structures such as footings, support columns, floor beams, floor and ceiling joists, headers, and roof rafters.

ARCH 209 Design Project I 5

The student develops working drawings for a basic level project that is determined by both the instructor and the student. The project is based on prior course work and reflects the minimum requirements for plan approval on a simple structure.

CREDITS

ARCH 210 Advanced Computer Aided Drafting 5

Using advanced modeling and/or BIM software, students learn how to model structures with 3D features, apply material attributes, assign lighting attributes, and render output.

ARCH 211 Design Project II 5

Students develop working drawings for an intermediate level project that is determined by both the instructor and the student. The project is based on prior course work and reflects the requirements for plan approval on a more complex structure. More advanced requirements are included in this project.

ARCH 212 Design Project III 5

Students develop working drawings for a more advanced level project that is determined by both the instructor and the student. The project is based on prior course work and reflects the requirements for plan approval on a more complex structure. More advanced requirements are included in this project. This project includes a 3d model and a materials estimate of the building design.

ARCH 292 Independent Projects 20-100 5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ARCH 293 Independent Projects 20-100 5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ARCH 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ARCH 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

ARCH 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

CREDITS

ARCH 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

**ARCHITECTURAL WOODWORKING/
CABINET MAKING TECHNOLOGY****ARWC 101 Introduction to Cabinetmaking 3**

This course is an introduction to the basic fundamentals of the cabinetmaking trade including sources and products of cabinetmaking and different occupational opportunities.

ARWC 102 Safety Principles 4

This course is an introduction to the required safety and shop rules to be applied in the lab as well as the OSHA and WISHA rules and regulations that help maintain a safe and productive work environment.

ARWC 103 Cabinetry Blueprints/Plans 4

An introduction to the fundamental skills of show drawings and detail plans, students learn to read and interpret plans including material and cabinet take-offs. Basic sketching is also introduced.

ARWC 104 Materials 2

This course is an introduction to the materials used in the cabinetmaking trade including both natural-made and man-made materials: MDF, particle board, laminates, veneers, solid surfaces, and sustainable sourced woods.

ARWC 105 Machine Tools I 4

This course is an introduction to the proper use, maintenance and application of basic machines used for the building of cabinets and woodworking projects. Basic machines may include the jointer, planer, radial arm saw, wide belt sander, table saw, vertical panel saw, line boring machine, motorized miter saw, and drill presses.

ARWC 106 Machine Tools II 4

A continuation of the concepts introduced in ARWC 105, students learn the proper use, maintenance, and application of complex machine tools used for the building of cabinets and woodworking projects. Advanced machines may include edge banders, sliding table/table saw, spindle shapers, panel raising attachment, panel router, Euro hinge machines similar to Blum Mini press, and the hollow chisel mortiser.

ARWC 107 Machine Tools \CNC 3

This course is an introduction to the proper use, maintenance, and application of CNC machining used for the cutting/milling of cabinets, woodworking parts, templates, and projects. The use of basic layouts on the computer and software used for this application is emphasized.

CREDITS

ARWC 108 Portable Power Tools 3

This course is an introduction to the proper use, maintenance, and application of portable power tools. Common tool use and care of router and bits, the different types of routers and their application, biscuit cutter, pocket hole jigs, drills and drivers, and various joint-making tools and their set-up.

ARWC 109 Hand Tools 3

This course is an introduction to the proper use, maintenance, and application of hand tools used for the cutting/milling, assembly, and installation of cabinets, woodworking parts, templates, and projects. Common hands tools include the block plane; measuring and marking tools; and cutting tools such as dovetail saws, back saws, and Japanese saws.

ARWC 110 Basic Cabinet Joinery 4

Students learn the proper use and application of joints used in the assembly and production of cabinets. Emphasis is on function, strength, ease of machining, and basic uses of various joints. Their application and suitability to different materials and production settings is also introduced.

ARWC 111 Tool Maintenance/Sharpening 3

This course is an introduction to the maintenance and sharpening of tools used in the shop including routine maintenance and minor tool repair/adjustments. Routine maintenance will be covered as well as some minor tool repair and adjustments. Students use assigned/instructor approved projects to replace knives, adjust cutting performance, and maintain machines.

**ARWC 112 Cabinetmaking/ Face I
Frame Construction 4**

Students learn to cut, assembly, and complete traditional face frame cabinets. Design, layout and proper material use will be covered. Design, layout, and proper material use is introduced as well as carcass assembly, face frames and door and drawer construction.

**ARWC 113 Cabinetmaking/ Face II
Frame Construction 4**

A continuation of the concepts introduced in ARWC 112, students learn to cut, assembly, and complete traditional face frame cabinets. Design, layout, and proper material use is introduced as well as carcass assembly, face frames and door and drawer construction. Students are assigned instructor- approved projects to develop more advanced knowledge and skills.

ARWC 114 Cabinetmaking/32mm System 3

Students acquire knowledge and skills in the use and application of the 32mm cabinet system. This includes the construction methods, materials, hardware, and assembly of frameless cabinets.

	CREDITS
ARWC 115 Finishing Methods I	3
Students are introduced to the use and application of finishes used in a shop setting including a variety of techniques: wipe-on, spray, and brushing.	
ARWC 116 Drawers and Doors	2
Students learn to assembly doors and drawers and design and manufacture different door/drawer styles to assigned/personal projects.	
ARWC 117 Laminates / Countertops / Solid Surface	3
Students are introduced to the fabrication and assembly methods of various countertop materials including plastic laminates and solid surface materials.	
ARWC 118 Occupational Math	3
This course is an introduction to mathematical computations as they related to the architectural woodworking/cabinetry industry. Applied skills include material estimation and board, square, and linear footage calculations.	
ARWC 119 Jigs and Fixtures	2
This course is an introduction to the use of jigs, templates, and fixture for doing machining processes when more than one part is required to be identical or parts need to be held for machining. Skills taught include material selection, measurements, and proper tooling and ease of use. Work is on shop projects and simulated mockups.	
ARWC 120 Cabinetmaking/ Commercial Construction	3
Students learn to assemble commercial case-work including assembly methods, construction standards, and materials.	
ARWC 121 Applied Communications	3
This course is an introduction to written communication skills and their application to professional-technical studies. Development of writing skills necessary to write technically formatted documents is emphasized.	
ARWC 201 Wood Bending/ Lamination Techniques	3
Students learn wood bending/laminating techniques including vacuum bagging and lamination bending. Types of forms, construction of forms, adhesives, and best materials for bending are included.	
ARWC 202 Architectural Millwork	3
Students learn architectural millwork fabrication and design methods using projects and mockups. Molding selection, machining, material selection, and cutting are also included.	
ARWC 203 Beginning Furniture Projects	5
Furniture design, styles and assembly methods are taught.	

	CREDITS
ARWC 204 Cabinet Installation- Residential/ Commercial	4
Students learn to install residential and commercial cabinets and fixtures. Layout, leveling, and fastening methods are also taught.	
ARWC 205 Advanced Joinery	4
The selection and proper use of tools and materials in the creation of advanced joinery are emphasized.	
ARWC 206 Cabinetmaking Computer Technology	4
This course is an introduction to the use of various industry software for design, layout, and manufacture of cabinets.	
ARWC 207 Veneering Technology	2
Students learn to use a variety of methods of applying, fitting, and trimming veneers.	
ARWC 208 Employment Preparation	3
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.	
ARWC 209 Advanced Projects	1-18
With instructor approval, students select and complete an advanced project.	
ARWC 292 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ARWC 293 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ARWC 295 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ARWC 296 Work-based Learning Experience	1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	

	CREDITS
ARWC 297 Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
ARWC 298 Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	

AUDIO/SOUND TECHNOLOGY

AUDIO 101 Introduction to Broadcast and Media Careers	3
This course is an introduction to the business/broadcast industry with emphasis on recording studio technology, equipment, and terminology. Other topics presented include industry career paths, both management and non-management, and effective communication skills on the job. Students are introduced to the careers within the computer, film, and television industries.	
AUDIO 102 Safety Principles	3
Students learn to identify, define, and correct safety hazards in the workplace. Certified first aid and CPR training is also provided.	
AUDIO 110 Introduction to Digital Systems	2
This course is an introduction to digital theory, concepts, and languages. Sampling rates, quantum levels and basic compression techniques, analyzing system hardware, and planning basic configurations is also included.	
AUDIO 111 Basic Maintenance and Troubleshooting	3
Preventative maintenance methods and strategies are explored. Practical applications include the use of electronic measuring devices, meters, and scopes. Soldering, splicing, and making cable connections are also included.	
AUDIO 112 Characteristics of Sound	3
This course is an introduction to the physical nature of sound and how the ear translates it from a physical phenomenon to a sensory one. Topics include waveform characteristics, reflection, diffraction, frequency response, phase, loudness levels, sound-pressure levels, thresholds, and perceptions.	
AUDIO 113 Studio Acoustics	2
This course is an introduction to the design and construction of studios for a variety of applications, including audio project, music, audio-for-visual studios. Acoustics for control rooms is also examined.	

CREDITS

- AUDIO 114 Microphones 3**
This course is an introduction to microphone types, characteristics, techniques, and placement. Students analyze and utilize a variety of microphones in differing situations and venues.
- AUDIO 201 Introduction to Digital Audio Recording 2**
Students receive training in the operation of digital audio workstations (DAW) as well as other digital recording devices.
- AUDIO 202 Digital Audio Recording Techniques 5**
A continuation of the concepts introduced in AUDIO 201, students learn to operate digital audio workstations.
- AUDIO 203 Musical Instrumental Digital Interface (MIDI) 2**
This course is an introduction to musical instrumental digital interface (MIDI) connections, channels, electronic music instruments, and sequencers.
- AUDIO 204 Studio Operations 4**
This course is an introduction principles and methods required to operate an audio studio. Topics include the purchase and operation of studio gear and budget planning.
- AUDIO 205 Synchronization 2**
In a multimedia production environment, students learn to use synchronization and time codes.
- AUDIO 206 Audio Processing 5**
This course is an introduction to types of equalization, equalization filters, dynamic range processing, signal processing, and noise reduction.
- AUDIO 207 Monitoring 3**
In an audio environment, audio monitoring characteristics and types are compared. Speaker and room considerations, an introduction to surround sound, and live sound monitoring is also presented.
- AUDIO 208 Introduction to Audio Production Console 1**
The function of an audio production console for recording, playback, and mixing is emphasized. Other topics presented include dubbing, overdubbing, input, auxiliary sends, insert points, patching, and automation.
- AUDIO 209 Audio Production Console Techniques 5**
A continuation of the concepts introduced in AUDIO 208, students apply the techniques of recording, playback, and mixing on a production console.

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- AUDIO 210 Amplification 2**
The application of amplifiers to amplify, equalize, distribute, or isolate audio is emphasized. Types of amplifiers to be analyzed include equalization, distribution, and power.
- AUDIO 211 Production Audio Preparation 5**
Students learn to create scripts and work with project budgeting, prepare talent for production, practice voiceovers, and determine which sounds/music to use in productions.
- AUDIO 212 Communications Management 2**
Students use computer technology to prepare reports, research topics using the internet, and create /develop timelines and work schedules.
- AUDIO 213 Employment Preparation 3**
This course prepares student to use job research techniques and learn methods and tools designed to effectively seek professional employment within the audio/broadcast industry. The creations of letters, audio resumes, and other job search documents is emphasized.
- AUDIO 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- AUDIO 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
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This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- AUDIO 294 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- AUDIO 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

CREDITS

- AUDIO 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- AUDIO 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

AUTO BODY REBUILDING & REFINISHING

- AUTOB 101 Auto Body Math Applications 3**
This course is an introduction to mathematical theory and its application to the automotive refinishing industry. Topics include an overview of general mathematical concepts and how they are successfully utilized in practical situations.
- AUTOB 102 Safety Principles 3**
This course is an introduction to the safety practices and procedures common to the automotive refinishing industry.
- AUTOB 103 Materials Identification 3**
Students are introduced to the various types of automotive materials and finishes and the equipment used in their application. Emphasis is placed on identification of a variety of repair and refinishing materials, types of equipment, and proper safety precautions.
- AUTOB 104 Minor Body Repair Methods 5**
Students learn about materials used in minor body repair and how to use them to fill/ smooth depressed areas in sheet metal. The removal and installation of bolt-on panels are also included. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.
- AUTOB 105 Major Panel Replacement 5**
Students learn the basic theory of major panel replacement and alignment/replacement methods, including welding. They are also introduced to automobile body construction types and their common mechanical components: energy absorbers, suspension and steering systems and CV joints. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.
- AUTOB 106 Alignment – Sheet Metal 5**
This course includes practical applications in the adjustment/alignment of bolt-on sheet metal doors, hoods, fenders, and trunk lids. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.
- AUTOB 107 Alignment – Bumpers 3**
Students learn to align a variety of bumpers including impact-absorbing, fixed mounted and metal reinforced. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

CREDITS

AUTOB 108 Alignment – Head Lamps 1

Students learn to align various types of headlamps in automobiles. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 109 Trim and Accessories 3

Students learn to replace trim molding, hard ware, locks and latches and repair/replace window adjustment mechanisms and restraint devices. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 110 Window Mechanisms 4

Students learn to install mechanical and power window mechanisms. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 111 Introduction to Surface Preparation 2

Basic principles of interior and exterior surface preparation are introduced. Students learn to analyze the components of primers, undercoats, and topcoats. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 112 Surface Preparation Applications 5

This course introduces students to methods of surface preparation for automotive refinishing. Topics include sanding techniques, metal treatment, selection and use of undercoats, and proper masking procedures. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 113 Advanced Surface Preparations 5

A continuation of the concepts introduced in AUTOB 111 and 112, students continue to learned advanced surface preparation techniques to restore cars to factory standards after collision damage. Prerequisite: Successful completion of AUTOB 102, AUTOB 103 and AUTOB 112.

AUTOB 201 Topcoat Systems 5

Students are introduced to the basic principles of topcoat systems with emphasis on the types of automotive topcoat systems and their application procedures. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 202 Topcoat Systems Applications 5

A continuation of the concepts introduced in AUTOB 201, students learn to apply a variety of automotive topcoats including single-stage, basecoat/clearcoat, and tri-coat finishes. Buffing, compounding, and detailing of newly painted vehicles for delivery is also presented. Prerequisite: Successful completion of AUTOB 102, AUTOB 103 and AUTOB 201.

CREDITS

AUTOB 203 Shop Welding 5

This course provides instruction in automotive metal inert gas (MIG) and oxyacetylene welding with emphasis on safety, set-up and operation of welding equipment. Students learn to successfully join automotive sheet metal using the MIG process. Prerequisite: Successful completion of AUTOB 102, AUTOB 103 and WBAS 101.

AUTOB 204 Unibody Alignment 5

Students learn the basic theory and application of major unibody and frame repair. Topics include methods of inspection, types of measuring equipment, and identifying types of structural damage. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 205 Body Over Frame Alignment 4

Students learn to measure, align, and repair a unibody and body over frame vehicle. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 206 Glass Installation 4

This course is an introduction to glass installation methods with emphasis on the removal and replacement of structural glass, non-structural glass, and auto trim. Cleanup of vehicle interior after breakage is also included. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 207 Introduction to Plastic Repair 2

Students learn to identify the various types of plastics, their characteristics and locations, and which procedures to follow while repairing or refinishing the various types of plastics. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 208 Plastic Repair Methods 5

A continuation of the concepts introduced in AUTOB 207, students repair or refinish various plastic surfaces. Prerequisite: Successful completion of AUTOB 102, AUTOB 103 and AUTOB 207.

AUTOB 209 Shop Management 3

Students are introduced to the basic principles of body shop management with emphasis on management structure, customer relations, and sound business practices. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 210 Introduction to Estimating 4

Students learn to estimate collision damage, auto body repair, and finishing costs. Traditional and computer-assisted methods used for determining cost involved in labor, parts, and materials are emphasized. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

CREDITS

AUTOB 211 Special Projects 4

This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOB 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOB 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOB 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOB 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

AUTOB 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

AUTOB 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

	CREDITS		CREDITS		CREDITS
AUTOMOTIVE MECHANIC					
AUTOM 101 Basic Engines	4	AUTOM 140 Wheel Alignment and Steering Systems	4	AUTOM 231 Clutches and Manual Transmission Service	5
Students are introduced to internal combustion engine theory, configuration operation and diagnosis.		Students are introduced to wheel alignment, rack and pinion steering, and suspension systems.		In this advanced course, clutches and transmissions are examined and repaired using modern repair procedures.	
AUTOM 102 Engine Systems	4	AUTOM 141 Brake Systems	4	AUTOM 232 Automatic Transmission and Transaxle Service	4
Students are introduced to the operation and diagnosis of engine subassemblies such as valve trains, timing components and short blocks.		Students are introduced to hydraulics, system splitting, and power brakes.		In this advanced course, automatic transmissions and transaxles are examined and repaired using modern repair procedures.	
AUTOM 103 Basic Electrical Theory	4	AUTOM 142 Disc and Drum Brakes	4	AUTOM 233 Four and All-Wheel Drive Service	4
Students are introduced to electrical theory including ohms law, series and parallel circuits, and measuring devices.		Students are introduced to brake types and applications including anti-loc.		In this advanced course, multi wheel drive systems are diagnosed and repaired using modern repair procedures.	
AUTOM 104 Engines/Electrical Applications	4	AUTOM 143 Heating and Air Conditioning Systems	4	AUTOM 240 Advanced Wheel Alignment and Steering Systems Service	4
Students are introduced to automotive electrical applications such as charging systems and starting systems and problem diagnosis.		Students are introduced to automatic and manual mobile HVAC systems. Principles of heat transfer and refrigerant are examined.		In this advanced course, steering and suspension systems are serviced and aligned using modern alignment equipment.	
AUTOM 121 Basic Engine Performance	5	AUTOM 201 Advanced Engine Repair	5	AUTOM 241 Advanced Brake Service	4
Students are introduced to engine performance, diagnosis, and computer applications.		In this advanced segment detailed engine diagnosis and repair is performed. Crankshaft measuring, plastic gauge and piston rings are all examined.		In this advanced course, brake hydraulic systems are serviced using modern brake service equipment.	
AUTOM 122 Basic Ignition Systems	5	AUTOM 202 Engine Assembly	3	AUTOM 242 Advanced Disc and Drum Brake Service	4
Students are introduced to electronic and computer operated ignition systems including primary controls and secondary high voltage.		In this advanced course, engine subassemblies, cylinder heads, short blocks, and timing components are repaired to current standards.		In this advanced course, disc and drum brake systems are serviced and repaired using modern brake service equipment.	
AUTOM 123 Introduction to Fuel Systems	4	AUTOM 203 Automotive Electrical Systems	4	AUTOM 243 Applied HVAC Service	3
Students are introduced to electrical and mechanical fuel delivery systems and test equipment.		In this advanced course, diagnostic testers and electrical troubleshooting are examined.		In this advanced course, heating and air conditioning systems are serviced and repaired using modern AC service equipment.	
AUTOM 124 Introduction to Emissions Systems 2		AUTOM 204 Battery, Starters, and Charging Systems	4	AUTOM 250 Practical Applications	1-18
Students are introduced to EGR, evaporative and exhaust emission systems their requirements and operation.		In this advanced course, battery, starting, and charging systems are diagnosed and repaired.		This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
AUTOM 125 Introduction to Fuel Injection	2	AUTOM 220 Ignition Systems Service	4	AUTOM 292 Independent Projects	1-5
Students are introduced to electronic fuel injection, controls, and test equipment.		In this advanced course, computer and electronic ignition systems are diagnosed and repaired.		This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
AUTOM 130 Introduction to Lighting and Instruments	4	AUTOM 221 Fuel Systems Service	4	AUTOM 293 Independent Projects	1-5
Students are introduced to lighting types, switches and controls. Instrumentation theory and applications are examined.		In this advanced course, pressurized fuel delivery systems are diagnosed and repaired.		This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
AUTOM 131 Introduction to Clutches and Manual Transmissions	4	AUTOM 222 Emissions Systems Service	3	AUTOM 294 Independent Projects	1-5
Students are introduced to gear trains and synchromesh transmission operation.		In this advanced course, emissions are measured using modern test equipment and control systems adjusted and repaired.		This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
AUTOM 132 Automatic Transmissions/Transaxles	4	AUTOM 223 Fuel Injection	3		
Students are introduced to automatic transmission principles, hydraulics and planetary gear sets.		In this advanced course, fuel injection is examined, adjusted and repaired using modern test equipment and diagnostic procedures.			
AUTOM 133 Four and All-wheel Drive	4	AUTOM 230 Lighting and Instrument Service	3		
Students are introduced to four wheel drive, transfer cases and differentials.		In this advanced course, lights, wiring and instrument are examined, adjusted and repaired using modern test equipment and diagnostic procedures.			

CREDITS

AUTOM 296 Work-based Learning Experience 1-18

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AUTOM 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

AUTOM 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

BARBER**BARB 110 Barbering Theory 1**

This course provides an orientation to the basic science of barber-styling. Concepts of personal and professional aesthetics and future roles within the aesthetics industry are also included.

BARB 111 Scalp and Hair Analysis 2

Students are introduced to the techniques used to analyze hair as to texture, density, and growth and their application to the barbering process.

BARB 112 Shampooing 3

This course is an introduction to the basic methods of shampooing, rinsing, and conditioning of the hair.

BARB 113 Decontamination and Infection Control 5

This course is an introduction to the proper sanitation procedures relating to tools and equipment, station, and the shop. Additionally, students are trained in safety procedures for barber shops including special emphasis on the materials, equipment, and procedures used for the protection of staff and customers from infectious disease organisms.

BARB 114 Introduction to Barbering 5

This course is an introduction to the fundamentals of barber-styling including the use and care of a variety of barbering implements.

BARB 115 Safety/First Aid 2

Students learn about proper safety measures concerning the use of electrical equipment, chemicals, and blood-related injuries. Students will also learn and demonstrate shop safety procedures. Students will earn a CPR-First Aid card as a part of this major duty area.

CREDITS

BARB 116 Basic Haircutting Techniques 4

This course provides theory and practical experience in basic shear and clipper haircutting.

BARB 117 Customer Service 4

Students learn how to identify customers' needs and solve problems. Special emphasis is given to the development of interpersonal communication skills and examining how employees' actions can directly impact customers' impressions.

BARB 118 Applied Communications 3

Students learn effective communication skills and apply them in a practical setting.

BARB 120 Math for Barbers 3

Instructional emphasis is on acquiring mathematical and problem-solving skills that apply to the barbering industry.

BARB 121 Facial Hair 5

This course is an introduction to the methods used to prepare a client for shaving, including proper razor handling and stroking. The fourteen facial areas are also included.

BARB 122 Barbering Applications 5

This course provides practical application of barber-styling fundamentals with emphasis on the care of implements, shampooing, and basic haircutting methods.

BARB 123 Intermediate Haircutting Techniques 3

Students learn various types of hair styles and procedures to perform them.

BARB 124 Haircutting Applications 5

Students apply the techniques previously learned in BARB 110,111,113.

BARB 125 Applied Human Relations 3

Students learn such human relations skills as interpersonal communications, conflict management on-the-job, and team-building skills.

BARB 131 Advanced Techniques 4

Students are introduced to razor cutting techniques.

BARB 132 Advanced Applications 5

This course provides advanced techniques in all phases of hair cutting to ready the student for employment. Students are prepared for State Board licensing examination on theory and practical procedures.

BARB 133 Cutting and Styling Methods 4

Practical applications of cutting and styling are emphasized.

BARB 134 Cutting and Styling Applications 5

This course provides advanced techniques in all phases of hair styling to prepare the student for employment. Students are prepared for the State Board licensing Examination relating to both hair cutting and hairstyling.

CREDITS

BARB 135 Hair Styling 2

This course introduces the student to the art of hair style and design with emphasis on the selection of styles to complement facial features.

BARB 136 Artificial Hair Services 2

Students learn about hair replacement techniques.

BARB 137 Practical Applications 2

Students learn how measure, fit, cut and style hairpieces.

BARB 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BARB 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BARB 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BARB 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BARB 296 Work-based Learning Experience 1-18

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BARB 297 Work-based Learning Seminar 1-2

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CREDITS

BARB 298 Work-based Learning – No Seminar 1-18

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BIOMEDICAL EQUIPMENT TECHNICIAN: CLINICAL ENGINEERING**BMST 101 Safety Principles 4**

Students are provided training in general safety and industrial hygiene. This includes accident prevention, safety laws, safe handling and storing of materials, using tools and equipment safely and protection devices and clothing.

BMST 102 Blood borne Pathogens 3

Students learn to apply various methods to prepare and ensure a scientifically clean and sterile environment within the laboratory setting. Additional topics include biohazard awareness.

BMST 103 HIPAA 2

This course covers the uses and disclosures of identifiable health information that are allowed or permitted by the HIPAA Privacy Regulations.

BMST 104 Applied Math 4

This course is an introduction to math concepts as they relate to electronic circuits.

BMST 105 Testing Equipment 5

Students learn to safely use and operate a variety of ancillary test equipment. Students receive lab training as well as hands on experience with actual equipment.

BMST 106 Soldering 2

This course covers most aspects of soldering, a basic requirement in electronic assembly and repair. Types of solder and systems as well as application and removal of solder and good soldering practices are emphasized.

BMST 107 Schematics 3

Students learn how to draw schematics/block diagrams, read and plan diagnostic procedures, and use a five- step troubleshooting/servicing format.

BMST 109 Applied Service I 3

This course prepares students to manage and repair shop projects. Projects may include preventive maintenance, installation, testing, calibration, and repair of various types of equipment.

BMST 110 Applied Service II 2

This course prepares students to manage and repair shop projects. Projects may include preventive maintenance, installation, testing, calibration, and repair of various types of equipment.

CREDITS

BMST 201 Imaging Systems 3

This course covers several types of imaging processes and the associated physics behind those systems. The class is lecture and lab based, systems investigated may include ultrasound, X-ray, PET, MRI and CT scan among others.

BMST 204 Basic A&P for Biomedical Technology 4

The purpose of this course is to introduce students to the importance of the human body and its various organ systems. This course is designed for biomedical students and is a one quarter lecture course. The course will cover internal organ systems, such as cardiovascular, digestive, endocrine, lymphatic, respiratory, reproductive, and urinary. Students should come away with an understanding of the above systems, how they are anatomically structured, and how that structure aids in each system's functionality.

BMST 215 Introduction to Medical Terminology 3

This course covers some of the common terms, acronyms, roots and prefixes associated with the biomedical field. Instruction is delivered in three sections via the internet using Quia. Each section has multiple quizzes and is supplied with useful links for self study. Students complete each section pre final before moving to the next section. A final exam is given at the end of the course.

BMST 217 Biomedical Instrumentation 5

This course is an introduction to the more common medical test equipment used by practicing biomedical engineering technicians. Students learn the operating principle and use of this equipment.

BMST 218 Biomedical Equipment 3

This course covers several types of medical equipment: ECG, Pulse Oximeter, NIBP, and infusion pumps are some of the types of equipment. The history, use, theory of operation, and maintenance issues are also presented.

BMST 219 Medical Equipment Research 3

This is an independent research project meant to build research and presentation skills. Students are required to produce six research projects to an audience. Projects subjects may vary from medical equipment, companies or professional associations, among others. Prior project approval from the instructor is required.

BMST 220 Biomedical Engineering Applications 5

During this course students are exposed to a lab setting meant to simulate an actual working environment. Student may intake, service, repair, or evaluate medical or other types of equipment. Equipment may be provided by the class or public; students perform as closely as possible to a daily BMET routine.

CREDITS

BMST 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BMST 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BMST 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BMST 294 Independent Projects 1-5

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BMST 296 Work-based Learning Experience 1-18

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BMST 297 Work-based Learning Seminar 1-2

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BMST 298 Work-based Learning – No Seminar 1-18

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BIOTECHNOLOGY LAB TECHNICIAN**BTECH 110 Basic Laboratory Safety 2**

This course is an introduction to the fundamental safety skills necessary to work safely in a biotechnology laboratory including Introduction to a safe workplace, working safely in the laboratory: general considerations and physical hazards, working safely with chemicals and biological materials

	CREDITS
BTECH 111 Biohazard Abatement	2
Students learn the various methods to prepare and ensure a scientifically clean and sterile environment within the lab setting.	
BTECH 112 Hazardous Chemicals	2
Topics presented in this course include hazardous classes of chemicals and how to store them properly, handle them safely, and dispose of them in accordance with established procedures.	
BTECH 113 Introduction to Biotechnology I	5
This course is an introduction to the fundamental laboratory methods and a foundation in theory with practical information, drawing material from many sources: analytical chemistry texts, molecular biology manuals, industry standards, government regulations, manufacturer and supplier information, as well as the technical skills needed for employment in a modern laboratory.	
BTECH 120 Introduction to Biotechnology II	5
This course is a continuation of the concepts introduced in BTECH 113 including introduction to quality systems; regulation and documentation; quality laboratory measurements; tests and assays and instrumentation; basic math techniques; proportional relationships in preparation of laboratory solutions; and relationships and graphing using computers, and applications of the internet to biotechnology.	
BTECH 121 Media and Solutions	4
Students learn correct preparation techniques of common media and solutions with the use of laboratory equipment, including the autoclave and laminar flow hood.	
BTECH 130 Employment Preparation	3
Students learn job search techniques, scientific resume writing, and receive assistance in developing career goals and educational plans.	
BTECH 131 Laboratory Management	4
Millions of dollars are wasted annually because of poor laboratory management; important discoveries and innovations are delayed. Students receive training in communication, innovation or day-to-day operational management of a scientific laboratory.	
BTECH 132 Ethics and Science	3
This course emphasizes the ethical questions surrounding the biotech industry, its relationship to society, and future ethical issues yet to be resolved.	
BTECH 210 Journal Club	4
Students critically evaluate recent articles in scientific literature, or the results of several papers, even if some of these results might first appear to contradict each other. Emphasis on refining science and presentation skills.	

	CREDITS
BTECH 211 Tissue and Cell Culture	5
Topics include cell culture, media preparation, maintenance and cryopreservation of cultured cells, factors influencing the growth of cells during incubation, and operation of cell culture equipment.	
BTECH 212 Advanced Laboratory Management	3
This course is a continuation of the concepts introduced in BTECH 131, exploring the management of people, money, time, material, projects, information and quality.	
BTECH 220 Introduction to Molecular Techniques	5
Students learn modern molecular biology techniques including basic recombinant DNA techniques and nucleic acid analysis and purification are emphasized.	
BTECH 221 Protein Purification and Analysis I	5
This course is an introduction to basic concepts of separation and purification of protein.	
BTECH 230 Biomanufacturing I: Regulatory Compliance	4
Basic requirements of current Good Manufacturing Practice as delineated in 21 CFR 210 and 211 are presented.	
BTECH 231 Biomanufacturing II : Upstream Manufacturing Processes	4
This course is an introduction to the engineering of cell lines to produce protein products and the maintenance and validation of master cell banks.	
BTECH 232 Biomanufacturing III: Downstream Manufacturing Processes	4
Students learn the methods of isolating and purifying a protein product.	
BTECH 233 Principles of Biomolecule Isolation	3
Students learn the techniques used for isolating and purifying biomolecules.	
BTECH 240 Plant Tissue Culture	5
This course emphasizes aseptic technique, conifer seed and embryo structure, and media formulations for plant tissue culture.	
BTECH 241 Tissue and Cell Culture	5
Students learn cell culture, media preparation, maintenance and cryopreservation of cultured cells, factors influencing the growth of cells during incubation, and operation of cell culture equipment.	
BTECH 242 Advanced Projects: Plant Tissue Culture	5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced techniques of methods of plant tissue culture.	

	CREDITS
BTECH 250 Topics in Immunology	5
This course is an introduction to the non-specific/specific defense systems, humoral/cell-mediated immunity, applications of immunology, and disorders associated with the immune system.	
BTECH 251 Advanced Projects: Immunology 2	2
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced topics in immunology.	
BTECH 252 Flow Cytometry	5
Students learn history and theory of flow fluidics, optics and electronics, hardware and software use, as well as introduction to immunophenotyping, cell sorting, DNA kinetics and cellular ploidy analysis.	
BTECH 253 Advanced Projects: Flow Cytometry	2
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced elements of flow cytometry.	
BTECH 260 Advanced Projects: Flow Cytometry	2
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced elements of flow cytometry.	
BTECH 261 Advanced Projects: Advanced Molecular Techniques	5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced elements of molecular techniques.	
BTECH 262 Advanced Projects: Laboratory Management	5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced laboratory management techniques.	
BTECH 263 Advanced Projects: Immunology 5	5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced topics in immunology.	
BTECH 264 Advanced Projects: Genetics	5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced topics in genetics.	

CREDITS

BTECH 265 Advanced Projects: Mammalian Tissue Culture 5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on advanced techniques of methods of mammalian tissue culture.

BTECH 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BTECH 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BTECH 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BTECH 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

BTECH 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meets with the students to provide support and assistance during the experience.

BTECH 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

BOAT BUILDING**BOATS 101 Industrial and Shop Safety 3**

Within the occupational environment, students are trained in safety practices and procedures in accordance with federal and state standards. The application of these practices strongly emphasized a team approach to safety.

CREDITS

BOATS 102 Tools, Materials, and Fasteners 3

Students are introduced to the safe and appropriate use of tools, materials, and fasteners commonly employed in the construction of wood, fiberglass, and aluminum boats.

BOATS 103 Shop Math and Planning 3

Students learn shop math and planning principles as they apply to the boatbuilding process.

BOATS 104 Woodworking Lab 5

Students learn to use and maintain basic tools essential to the manipulation of wood as a boat building medium with emphasis on the completion of several woodworking projects assigned by the instructor. In addition, students make several small tools that are essential to the boat builder.

BOATS 105 Line Drawing 3

Students read lines drawings of boats and learn to fair in lines, develop different shapes in the dimensional views, and to create accurate tables of offsets. Drafting a complete set of lines to a different scale permits the student to practice skills necessary to move on to full-size drawing on the mold-loft floor.

BOATS 106 Templates 3

This course is an introduction to the methods and techniques employed in generating patterns and templates from a set of drawings. The patterns and templates are used to establish and shape full sized parts to be used in the final assembly.

BOATS 107 Scale Modeling 6

Using a set of lines drawings that the student has generated in the Boats 105 course, students construct a scale model of an actual boat. The emphasis of this course is to employ skills learned in all previous courses to demonstrate understanding of some of the processes necessary to build a full-sized boat.

BOATS 108 Damage Assessment 3

Using damaged boats, students learn to evaluate and assess damage and to differentiate between cosmetic, structural, and catastrophic damage to the hulls, superstructure, and systems of a boat. The physical dismemberment of vessels to determine the extent of the damage is emphasized.

BOATS 109 Documentation 3

Students learn to document the damage assessment of a vessel during physical dismemberment in order to reassemble the boat upon completion of repairs.

BOATS 110 Repair Techniques 5

Students use tools, materials, fasteners, and techniques to repair damaged boats.

CREDITS

BOATS 111 Vessel Documentation and Research 3

Students learn to research the history and pedigree of classic and historic vessels. They use informational resources such as the college and program library, the local maritime museum, the internet, and senior members of the community to documentation learned strategies.

BOATS 112 Vessel Stabilization 3

In the case of classic and historic vessels that are in advanced stages of decomposition, students learn non-invasive techniques to stabilize the structure in preparation of restoration.

BOATS 113 Restoration Techniques 6

A continuation of the concepts introduced in BOATS 111, students learn techniques used to restore classic and historic watercraft to, as near as possible, the original appearance and function of the watercraft.

BOATS 120 Practical Applications 40 2

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BOATS 201 Full-Sized Lofting 3

Students develop their lines drawings to full-size scale permitting them to develop information for use in BOATS 202, BOATS 203, and BOATS 204.

BOATS 202 Bevel Calculation 3

On the loft floor, students learn to calculate angles to cut and build into the parts of a boat.

BOATS 203 Construction Drawing 3

A continuation of the concepts introduced in BOATS 202, students learn to generate full size drawings of the various parts of a boat.

BOATS 204 Line Pickup 3

A continuation of the concepts introduced in BOATS 201, BOATS 202, and BOATS 203, students learn to transfer the information to the stock and material to be cut to shape for the various parts of the boat building project.

BOATS 205 Planning Methods 3

Students learn to plan out an efficient boat building sequence.

BOATS 206 Component Fabrication 3

Students learn to fabricate sub-assemblies for further construction steps.

BOATS 207 Building Setup 6

Students learn to set up the building-site in the form of tools and fixtures to be used to ensure that building components fit together accurately.

BOATS 208 Framing **CREDITS**
6

Students learn to construct the framework of the boat in preparation of the hull fabrication process.

BOATS 209 Hull Fabrication **6**

Depending on the project, students will learn the hull fabrication process for a wood, fiberglass or aluminum boat.

BOATS 210 Fitting-Out **6**

Mainly dealing with the structural components of the project boat, students will learn to fit re-enforcing members such as bulkheads, knees, deck framing, seats, and foundations for the rigging and systems.

BOATS 211 Rigging and Systems **6**

In this course, depending on the project boat, students will learn to install the steering and propulsion components. These components may include, oars, rudders, centerboards, masts, booms, sails, running and standing rigging, and inboard or outboard motors and steering systems

BOATS 212 Planning/Layout **3**

Dealing primarily with the interior components and furniture of boats, students learn to plan and layout user-friendly interior systems.

BOATS 213 Mockups **6**

Before beginning actual construction of interior components, students learn to mock-up possible configurations of the layout using low-cost and easily worked materials that may be used as patterns for actual components.

BOATS 214 Joinery Methods **3**

In the Joinery Methods course students learn methods employed by cabinetmakers and fine woodworkers along with skills unique to boat builders to join and construct interior assemblies for installation in boats.

BOATS 215 Parts Fabrication **6**

Students learn to fabricate components of cabinetry and trim for maximum aesthetic and structural effectiveness.

BOATS 216 Veneers and Laminates **6**

In this course, students learn to lay out and install surface veneers and laminate to maximize aesthetic effects and finishes in boat interiors.

BOATS 217 Pre-Assembly Methods **4**

Before final installation of interior components and cabinetry, students learn methods of pre-assembling parts at the workbench.

BOATS 218 Hardware Installation Methods **4**

This course offers students an opportunity to research and install different types of hardware used in the installation of cabinet doors and latches, extension and hanging hardware for monitors, and navigation and communications equipment.

BOATS 219 Final Assembly **CREDITS**
4

Students work on and learn to properly sequence and install components and assemblies fabricated during prior coursework.

BOATS 220 Practical Applications **4**

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BOATS 221 Practical Applications **3**

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BOATS 291 Practical Applications **1-18**

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BOATS 292 Independent Projects **1-5**

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BOATS 293 Independent Projects **1-5**

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BOATS 294 Independent Projects **1-5**

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BOATS 296 Work-based Learning Experience **1-18**

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

BOATS 297 Work-based Learning Seminar **1-2**

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

BOATS 298 Work-based Learning – No Seminar **CREDITS**
1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

BROADCASTING & VIDEO PRODUCTION**BROAD 101 Safety Principles** **1**

This course is an introduction to the safety practices common to the broadcast and video production environment.

BROAD 105 Broadcast Electronics Theory **5**

Students are introduced to the principles and applications of resonant circuits, power supplies, oscillators, and AF and RF amplifiers. This unit is taught concurrently with BROAD 109 so that basic system understanding may be tied to basic electronic principles.

BROAD 106 Applied Electronics **3**

A continuation of the concepts introduced in BROAD 105, students learn how electronic theory is applied to broadcast circuits. This unit is taught concurrently with BROAD 110 so that basic system understanding may be tied to more advanced electronic principles.

BROAD 109 Electronic Principles I **5**

Students are introduced to the study of modern electronics through a series of lectures and class discussions that are designed to be enjoyable, understandable, and practical. Topics covered range from beginning electro-static principles and Ohm's law to electromagnetic, inductive, and capacitive properties.

BROAD 110 Electronic Principles II **5**

Students apply their knowledge of electro-static principles, Ohm's law, and electromagnetic, inductive, and capacitive properties to broadcast equipment and systems.

BROAD 113 Master Control Operations I **3**

This course is an introduction to the operation on all signal delivery system components used to feed audio and video signals to the program feed. This includes operating video source machines and monitoring signal standards.

BROAD 115 Record/ Playback Devices **3**

Students learn the basic theory and practice the operational skills necessary to adjust, set up and operate record and playback devices. The adjustment of system support equipment is also included.

BROAD 117 Program Editing I **3**

Students are introduced to audio and video editing methods. Practical applications include correcting recorded flaws and timing errors while editing prerecorded material. Students perform to edit quality test standards.

CREDITS

- BROAD 119 Basic Maintenance Techniques 3**
Preventative maintenance methods and strategies are explored as students receive training in the use of electronic measuring devices, meters, and scopes. Soldering, splicing, and making cable connections are included in this unit.
- BROAD 121 Production Process Theory 3**
Students are introduced to the production process: theory, planning, and the application of sound project planning. Identification of the responsibilities of various jobs within the production unit is also included.
- BROAD 123 Introduction to Broadcast Systems 3**
Students are introduced to the fundamentals of the television signal, cable, microwave, satellite, and internet communication systems. The setup of basic video systems, along with audio and visual measuring equipment, is also covered.
- BROAD 125 Video Tape 3**
The use of video tape as a means of capturing audio and visual information are explored including the various format choices available. Students learn to set up and operate video tape to record and play back various production elements.
- BROAD 127 Production Editing I 3**
Students are introduced to both linear and non-linear systems. The proper planning, execution, and monitoring of audio and video continuity through the use of various hardware driven editing systems is also included. Students edit projects in order to create commercial and program material.
- BROAD 128 Employment Preparation 3**
Using publications, interviews and internet research, students gather facts about wages, hours, and working conditions to develop career goals and educational plans to meet those goals. They also learn to write cover letters, resumes, and portfolios.
- BROAD 201 Analog Systems I 3**
Basic analog linear systems, aural and visual along with the color encoding process, are analyzed and discussed. Heterodyne and component analog systems are also covered. Students apply analog system principles to broadcast systems.
- BROAD 202 Advanced Broadcast Formats 3**
Students learn Advanced Television Systems Committee (ATSC) system requirements and standards. They also contrast and compare analog and digital broadcast technologies.
- BROAD 203 Introduction to Digital Systems 2**
Students are introduced to digital theory, concepts, and languages as well as sampling rates, quantum levels, and basic compression techniques. Analyzing system hardware and planning basic configurations is also included.
- BROAD 204 Introduction to Operating Systems 3**
Computer platforms and operating systems are analyzed and studied as students study the Windows NT setup protocols and demonstrate basic system administration skills.

CREDITS

- BROAD 205 Receivers/Transmitters 5**
Students are introduced to the principles and applications of types of modulation, transmitters, receivers, power distribution systems, and grounding. BROAD 106 is a prerequisite for this unit which begins to prepare the student for the Society of Broadcast Engineers certification examination.
- BROAD 206 Power and Communication Systems 3**
A continuation of the concepts introduced in BROAD 205, students study the applications and principles of types of modulation, transmitters, receivers, power distribution systems, and grounding. BROAD 205 is a prerequisite for this course. The additional topics of cable, microwave, satellite, and fiber optic communication will also be covered.
- BROAD 209 AC/DC Circuits 5**
Students begin to study, analyze, and compare active devices in AC and DC circuits, solving circuit problems. Frequency, wavelength, and antenna systems are also be studied.
- BROAD 210 AC/DC Applications 4**
Students apply knowledge of active devices in AC and DC circuits, solving complex circuit problems. The interaction of frequency, wavelength, and antenna systems is further analyzed.
- BROAD 213 Digital Television Standards 3**
Students are introduced to the theory and application of local-area networks (LAN's), wide-area networks (WAN's), and analyze advanced compression techniques including: fractal, wavelets, FIF/STN, & MJPEG. The intranet, internet, TCP/IP, ISDN, ASDL, DSL, ATM, and DS3 is also included as well as the study of advanced system configuration protocols, CCIR-601.
- BROAD 215 ATSC Formats and Transcoding 2**
Topics for discussion and analysis include serial digital and component formats, transcoding, transport streams and data integration as well as possible artifact and "latency" anomalies.
- BROAD 217 Audio Engineering 5**
Students practice audio measurements and standards by testing audio equipment under broadcast conditions. Headroom and distortion parameters are discussed as well as designing, building, and installing audio impedance matching devices and 'pads'. Practical applications include an audio installation / set-up technician / sound engineer.
- BROAD 219 Video Engineering 4**
Students learn the limitations of human visual perception as it pertains to visual acuity. Practical applications include the analysis of video camera formats - 1V - 2V - 3V - 4V; light sources and color temperatures. Using manuals and test equipment, students learn to set up and align test equipment, monitors and camera systems.
- BROAD 221 Satellite Communications 2**
Students learn the theory of operation of satellite up-link and down-link equipment. Using down-link equipment, students perform satellite acquisition applications.

CREDITS

- BROAD 223 Systems Maintenance 5**
Students practice a variety of skills: testing equipment, soldering, interpreting block and schematic diagrams, repairing electronic equipment, troubleshooting, and non-specific servicing.
- BROAD 225 Installation and Maintenance Methods 4**
Students perform preventive and routine maintenance on broadcast equipment as well as performing as an installation/maintenance technician in a broadcast environment.
- BROAD 227 DTV Trans-Systems /8VSB 4**
Students analyze and discuss fundamentals of DTV transmission systems including data randomizer, forward error correction, Reed Solomon encoder, data interleaver, trellis encoder and data multiplexer. Fundamentals of SSB, 8-VSB modulator, pilot insertion, VSB filter and modulator, RF upconverter, 8-VSB spectrum, 8-VSB transmission measurements, and adjacent channel considerations are also be discussed.
- BROAD 229 Compression MPEG-II & AC-3 2**
Students discuss and analyze 5.1/AC-3 video compression and image artifacts as well as digital transport system and 188 byte MPEG-II. Students compare contrast transport standards against transmission standards.
- BROAD 231 Broadcast Station Operations 5**
All aspects of operating a broadcast station are included: Federal Communications Commission rules and requirements; formats, programming and promotions; advertising; ratings and demographics; and traffic department and log-keeping.
- BROAD 233 Communications Management 3**
Students plan budgets, write memos and reports, develop time lines and work schedules, write proposals and bid-specifications. Basic computer literacy skills and Internet research skills are also included.
- BROAD 235 Control Room Equipment I 5**
Students practice the operational skills necessary to set up, adjust, and operate various record and playback hardware under broadcast operational conditions. Students check program quality making adjustment as needed.
- BROAD 237 Control Room Equipment II 5**
Students practice advanced control room operational skills as they learn the steps necessary to apply program material into computer-based server systems. This includes satellite, network, internet and other available program streams.
- BROAD 243 Master Control Operations II 5**
Students operate all signal delivery system components used to feed audio and video signals to the program feed. They also monitor and meet all television signal standards and perform as the master control operator.

CREDITS

BROAD 245 Non-Linear Editing / Format and Systems 4

This course is an introduction to linear and non-linear editing formats and systems where they learn to operate various non-linear editing systems, both audio and visual.

BROAD 247 Program Editing II 5

Practical applications include the editing of program and promotional material to meet station scheduling requirements. Students also develop EDL and edit decision lists to perform critical program continuity edits.

BROAD 249 Network Storage and Control 3

Students learn to operate various automation systems used in broadcasting including program interface systems such as 'Media Client' and 'Air Client'. Automation of work stations is also included.

BROAD 251 Introduction to the TV Process 3

This course is an introduction to idea formation and development, scripting, and the use of story boarding and shot lists in the planning and completion of productions.

BROAD 252 TV Production Applications 5

A continuation of the concepts introduced using production models such as effect-to-cause and process message, students apply production process methods in a broadcast production environment. Other elements presented include writing program proposals, preparing budgets, writing scripts, developing facilities requests, creating schedules, completing permits and clearances, and writing publicity/promotional markets.

BROAD 254 Principles of Lighting 5

This course introduces students to lighting theory and techniques with emphasis on the most commonly used lighting instruments and accessories, light grids, dimmer boards, and control systems. Practical applications include light set up for productions.

BROAD 255 Lighting Techniques 5

This course introduces students to the advanced functions of lighting theory and technique with emphasis on fixture repair, special effect lighting, and the use of color correction, diffusion, reflection, and deflection. Students also practice computing and splitting loads and create lighting plans for field and studio productions.

BROAD 257 Elements of Audio I 3

In this course students learn patching and routing, and the distribution of television audio signals. Practical applications include the operation of audio record, playback, and pick up devices for productions and the set-up of control systems.

BROAD 258 Audio Techniques 5

While using audio record and playback equipment for productions, students develop audio editing, sweetening, and mixing technique. Advanced field audio techniques are also presented.

CREDITS

BROAD 260 Studio Camera Equipment 3

This course is an introduction to studio camera equipment, accessories, and mounting equipment.

BROAD 261 Studio Camera Operations 5

In the second of two units on studio camera operation fundamentals, students learn to set studio cameras and camera systems, operate cameras, and learn how to use tele-prompt equipment.

BROAD 262 Set Design 3

This course introduces the student to set design techniques and methods, set properties, dressings, and various scene components. Practical applications including design, drawing, building, and repairing scene components.

BROAD 265 Field Production 7

This course is designed to develop advanced field production skills necessary to complete remote projects. Included are site surveying, planning, set up, and lighting of different venues which using single or multiple cameras.

BROAD 267 Production Editing II 2

Students complete assigned project using supplied element, evaluation will be based on meeting all applicable industry standards.

BROAD 272 Introduction to Video Graphics 5

Students learn to set up and operate various graphic generation devices, such as character generators, Paint Box, and Still Store devices. Basic graphic design principals and concepts are also presented.

BROAD 273 Video Graphics Applications 5

This course is an introduction to advanced graphic scenarios, 3-D, and animation techniques with emphasis on methods used to import and export various graphic formats and the development and creation of graphic packages.

BROAD 276 Technical Directing I 6

This course introduces students to the video switchers, video routing systems, video manipulation devices, system timing, and video patching systems commonly used in production. Other areas of emphasis include the technical director duties and responsibilities, the use of keys, chroma keys, and other special effects.

BROAD 277 Technical Systems Methods 6

Student perform functions and duties of a technical director and act as a crew chief while setting up video switchers, routing and patching equipment, manipulation devices, special effects, keys, and chroma keys. Advanced timing adjustments and troubleshooting skills are also developed as needed during studio and remote productions.

BROAD 281 Introduction to Digital TV 2

The development of advanced television and its economic impact is introduced. Advanced analog and advanced digital formats will be compared and contrasted with NTSC and film.

BROAD 282 Introduction to Video Formats 3

This course introduces students to the video formats currently used and compares the advantages of composite, component, and digital formats. Advanced television (ATV) technology, both analog and digital, is also presented.

BROAD 283 Emerging Technologies 3

Advances in audio and visual imaging as well as emerging technologies include 'wavelet' and 'fracture' compression, broadcast media interactivity, and other sensory delivery systems are presented.

BROAD 285 Practicum I 5

Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 286 Practicum II 5

Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 287 Practicum III 5

Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 288 Practicum IV 5

Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 289 Practicum V 5

Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 290 Practicum VI 4

Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

CREDITS

CREDITS

- BROAD 291 Practicum 3**
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.
- BROAD 292 Practicum 3**
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.
- BROAD 293 Practicum 3**
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.
- BROAD 294 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- BROAD 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.
- BROAD 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- BROAD 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CARPENTRY

- CARPT 101 Carpentry Math 3**
This course is an introduction to basic math concepts and their applications to the carpentry field. Linear, board, and square foot measurements and using formulas to calculate material requirement and costs is emphasized.

CREDITS

- CARPT 102 Safety Principles 3**
This course is an introduction to the safety concerns and procedures used in the construction field. Students apply approved construction site safety and health procedures, use personal protection gear, and safely use hand and power tools.
- CARPT 103 Prints and Plans 4**
This course is an introduction to residential blueprint reading with emphasis on plan types, dimension lines, scaling prints, and the symbols and abbreviations common to a variety of construction plans.
- CARPT 104 Construction Materials 2**
The selection and installation of various types of construction materials is emphasized. Students learn about the types and sizes of lumber, the use of fasteners in carpentry, and the installation of hardware.
- CARPT 105 Tools and Equipment 4**
The proper use and care of measuring, layout, and hand tools is emphasized.
- CARPT 106 Power Tools 5**
This course is an introduction to the proper use and care of portable, stationary, electric, and pneumatic equipment.
- CARPT 107 Optical Instruments 3**
The use various transits and levels used in the construction industry is presented.
- CARPT 108 Plot Plans and Building Layout 3**
The interpretation of architectural plans and their application at the construction site is emphasized. Topics include the principles, equipment, and methods used to perform the site layout tasks. The process of distance measurement as well leveling for site layout is also presented.
- CARPT 109 Introduction to Framing 4**
This course is an introduction to the procedures used to lay out and frame walls and ceilings including roughing-in door and window openings, constructing corners and partition Ts, bracing walls and ceilings, and applying sheathing.
- CARPT 110 Foundation 3**
This course is an introduction to the materials and methods used to construct concrete forms and foundations including various reinforcement methods such as re-bar and welded-wire fabric.
- CARPT 111 Foundation Footings 3**
The correct and accurate placement of footings and piers are emphasized.
- CARPT 112 Foundation Walls 5**
This course is an introduction to the methods used to build, align, and establish concrete grades in forms. Materials calculation is also included.

CREDITS

- CARPT 201 Floor Systems 5**
This course is an introduction to the variety of floor types: requirements, assembly, and the advantages and disadvantages of each. Practical applications include the installation and finishing of hardwood floors, laminate/engineered floors, and tile.
- CARPT 202 Wall and Ceiling Construction 5**
Students learn to frame walls and ceilings according to federal, state, and local requirements.
- CARPT 203 Stairs 3**
This course is an introduction to the design and construction of residential and commercial stair systems. Topics include stair design factor, building code requirements, stair layout, cutting, installation, and various tread/riser installations.
- CARPT 204 Introduction to Roofing 3**
This course is an introduction to the types of roofs including the layout of rafters for a variety of roof types: gable, hip, valley intersections. Both stick-built and truss-built roofs are included.
- CARPT 205 Roof Construction 5**
Practical applications using conventional methods of layout and sequence of assembly to erect a structure is emphasized.
- CARPT 206 Introduction to Exterior Finish Methods 4**
This course is an introduction to the materials and methods used for sheathing and exterior siding.
- CARPT 207 Exterior Doors and Windows 5**
This course is an introduction methods used to install a variety of windows, skylights, and exterior doors. The installation of weatherstripping and locks is also included.
- CARPT 208 Siding 5**
Types of exterior siding, surface covering systems, and the equipment used to apply them are emphasized.
- CARPT 209 Introduction to Interior Finish Methods 3**
This course is an introduction to the types of interior systems, materials, and hardware commonly used in residential and commercial construction. The development of estimating skills to determine the cost of materials is also introduced.
- CARPT 210 Interior Floors, Walls, and Ceilings 4**
Course emphasis is on surface preparation and applications methods that meet federal, state, and local requirements. Methods used to protect the interior of a structure against natural and man-made elements is also included.

CREDITS

CARPT 211 Interior Doors and Windows 5
The proper sequence used to set doors and install trim and hardware for both doors and windows is emphasized.

CARPT 212 Moldings 4
The installation of a variety of trim pieces is emphasized.

CARPT 213 Employment Preparation 2
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

CARPT 215 Practical Applications 2
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CARPT 291 Practical Applications 1/18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CARPT 292 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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CARPT 294 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CARPT 296 Work-based Learning Experience 1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

CARPT 297 Work-based Learning Seminar 1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

CREDITS

CARPT 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

EARLY CHILDHOOD EDUCATION/ CHILD CARE

ECE 101 Introduction to Child Care / Early Education 5

This course is an introduction to the personal and professional standards of ethical conduct, philosophies, and developmental theories related to the nurturing and teaching of young children.

ECE 102 Early Education 3

This course is an introduction to the developmental theories related to the nurturing and teaching of young children.

ECE 103 STARS 2

This course provides basic child care training for child care center teachers, program supervisors and directors. Its purpose is to provide entry-level employees with a basic core knowledge and motivation to see more early childhood education training.

ECE 104 Learning Environments 5

This course is an introduction to the methods used to develop developmentally appropriate learning environments. Students identify, demonstrate, and evaluate criteria for planning learning environments for young children including the selection of equipment, materials, and supplies and the best use of physical space.

ECE 105 Early Childhood Lab I 2

Students spend time in a child care/early education setting, practicing and developing teaching skills, planning/implementing/evaluating children's activities, and participating in curriculum planning with their on-site supervising teacher/director. Students schedule and participate in conferences with their on-site supervisor and program instructor to evaluate their skill development and training progress.

ECE 106 Growth, Development and Learning 4

This course is an introduction to the many stages of child growth and learning including, the concept of sequential stages of development, factors influencing growth and learning, the definition and application of developmental appropriateness, and an introduction to methods of observing and recording children's development.

CREDITS

ECE 107 Physical Development 4

The developmental sequence of children's physical skills introduced with emphasis on the equipment used to foster gross and fine motor skills and enhance sensory development.

ECE 108 Emotional and Social Development 5

This course is an introduction to the factors that affect the healthy emotional and social development of children: the support of children's self-concept, effects of an individual's temperament on adult/child and child/child relationships, social/emotional milestones, and activities that support pro-social behavior.

ECE 109 Child Guidance 5

This course is an introduction to the factors that affect the behavior of children with emphasis on positive guidance strategies. Topics include age-appropriate positive reinforcement, guidance, and discipline. The impact of family and cultural values on behavior and the effect of environment and activities on self-discipline is also included.

ECE 110 Cognitive Development 5

This course is an introduction to the theories of child development and the factors that influence children's cognitive development. Topics include the identification of milestones in the development of cognitive skills, recognition of the developmental sequence of communication skills, and the application of individual learning styles.

ECE 111 Early Childhood Lab II 2

Students spend time in a child care/early education setting, practicing and developing teaching skills, planning/implementing/evaluating children's activities, and participating in curriculum planning with their on-site supervising teacher/director. Students schedule and participate in conferences with their on-site supervisor and program instructor to evaluate their skill development and training progress.

ECE 201 Issues in Child Care / Early Education 5

This course provides an opportunity to discuss the issues in child care that impact children and their world: ethical, legal, political, professional, diversity, and family/cultural values.

ECE 202 Children with Special Needs 5

This course is an introduction to the characteristics and assessment of children with special needs and strategies for adapting the learning environment. Working with the child, family, and supportive community/educational agencies and the implications of the Americans with Disabilities Act (ADA) for Child Care/Early Education programs is also included.

CREDITS

ECE 203 Observation and Assessment 4
The primary domains of development (physical, social, emotional, cognitive and creative) and how they are integrated for each child are emphasized. Students develop skills in observing and recording children's growth, development, and learning and use observations as tools for obtaining information about individual children and their needs.

ECE 204 Early Childhood Lab III 2
Students spend time in a child care/early education setting, practicing and developing teaching skills, planning/implementing/evaluating children's activities, and participating in curriculum planning with their on-site supervising teacher/director. Students schedule and participate in conferences with their on-site supervisor and program instructor to evaluate their skill development and training progress.

ECE 205 Instructional Strategies 5
Methods of individual or group instruction and the role of the teacher/caregiver is emphasized. Students explore the theory of learning styles and their practical application in enhancing individual children's learning.

ECE 206 Curriculum Development 5
The creation of developmentally appropriate curriculum for early childhood programs is emphasized. This course looks at contemporary philosophies and current best practices in curriculum activities, methods, and materials appropriate for planning a program for young children.

ECE 207 Professionalism 5
The application of the profession's code of ethics and advocacy for children and families is emphasized. Students also develop a professional portfolio and create a resource file of professional publications and organizations.

ECE 208 Family Dynamics 5
Emphasis is on the understanding of family structures and techniques of supportive interactions with families. Parent involvement, education, conferences, and referrals are also included.

ECE 209 Program Management 5
This course emphasizes the principles and skills needed to manage childcare and/or various early education programs: licensing regulations; food programs; community resources; budgeting; record keeping; and staff selection, support, supervision, and training. Practical applications include the research and development of a project that focuses on an appropriate topic for presentation.

CREDITS

ECE 210 Early Childhood Lab IV 2
Students spend time in a child care/early education setting, practicing and developing teaching skills, planning/implementing/evaluating children's activities, and participating in curriculum planning with their on-site supervising teacher/director. Students schedule and participate in conferences with their on-site supervisor and program instructor to evaluate their skill development and training progress.

ECE 291 Practical Applications 1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ECE 292 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ECE 293 Independent Projects 1-5
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ECE 294 Independent Projects 1-5
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ECE 296 Work-based Learning Experience 1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

ECE 297 Work-based Learning Seminar 1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

ECE 298 Work-based Learning – No Seminar 1-18
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CIVIL ENGINEERING TECHNOLOGY

CET 101 Introduction to Civil Engineering 3
This course is an introduction to the wide variety of projects tasked to civil engineers and how calculations are used. Typical calculations, fundamental dimensions, and units are introduced. The student learns the typical notations used and techniques to scale, format, and annotate calculation sheets.

CET 103 Statics 3
This course is an introduction to typical gravitational and lateral simple systems found in civil engineering. The concepts of reactions, Hooke's Law, elastic behavior of simple members under axial, bending, and torsion, forces are studied. The student learns about the coordinate systems required to properly model 3D vectors.

CET 105 Structural Analysis 3
This course is an introduction to the principles of the properties of typical structural section areas and volumes and covers basic structural types such as trusses, beams, columns, and footings. Basic material science and its structural properties are also covered.

CET 107 CAD – 2Dimension 3
This course is an introduction to AUTOCAD in two dimensions and covers drawing file types, templates, layers, and basic draw and modify commands. The student learns the Cartesian coordinate system and typical plate layout for a typical plan elevation and section drawing as well as annotation and plotting.

CET 109 Introduction to Surveying 3
This course is an introduction to surveying and how it relates to civil engineering with emphasis on the application of modern surveying equipment. The student learns the Public Land Survey System and horizontal and vertical datums. Spherical and Cartesian coordinate systems are also studied.

CET 111 Civil 3D Surfaces and Points 3
This is an introductory course on digital survey points and TIN surfaces in civil 3D. The student learns point file formats, data transfer, point styles, and labels. The creation and editing of surfaces are included along with manipulating styles and labels and includes the concepts of contours and surface profiles.

CET 113 Hydrology 3
This course is an introduction to hydrology and includes the study of regional rainfall events and how to calculate runoff from a project site. The student learns how to model a runoff basin, identify soil types and land, and to use different computer models common in the field.

CREDITS

- CET 115 Agency Requisites 3**
This course is an introduction to the different agencies and jurisdictions encountered when doing a typical civil engineering project. The student learns how to determine which agency, code, and design manual are applicable for a particular project.
- CET 117 GIS Resources 3**
This course is an introduction to the concepts and uses of the geographic information system (GIS) including include history of GIS; GIS data structures and sources of data; GIS tools, vendors, and software; applications; and resources. Practical applications include spatial data display and query, map generation, and simple spatial analysis using Autodesk Map.
- CET 121 Coordinate Geometry 3**
This course is an introduction to how surveyors and engineers calculate points along lines and curves typically used in the field. The student learns how to draw problems to scale, the concept of bearings, and use trigonometry to solve right triangles. Horizontal and vertical curves are introduced.
- CET 123 Alignments and Profiles 3**
This course is an introduction to horizontal and vertical alignments. The student learns how design conditions affect the layout of works. Topics include how design speeds, sight distance, and maximum and minimum grades influence the design of roads. Also covered are how to model alignments and profiles in civil 3D.
- CET 125 Basic Corridors in Civil 3D 3**
This course is an introduction to typical cross sections used in civil engineering. The student learns how to create typical assemblies to model basic road corridors in civil 3D. The concepts of side slopes, daylight, and catch points are also covered.
- CET 127 Surveying - Control 3**
This course is an introduction to the concept of project control. Topics include site recon, control layout, datums and data collector set up. The student learns how to determine control point locations and set monuments and traverse in three dimensions to a required horizontal and vertical closure.
- CET 131 Construction Materials 3**
This course is an introduction to the typical materials used in a civil engineering project. The materials studied include concrete, asphalt, rock, PVC, steel, and soil. The student learns how to determine the required specifications, testing requirements, placement, measurement, and payment for a project.

CREDITS

- CET 133 Civil 3D Grading 3**
This course is an introduction to the concept of project control. Topics include site recon, control layout, datums and data collector set up. The student will learn how to determine control point locations, set monuments and traverse in three dimensions to a required horizontal and vertical closure.
- CET 135 Utilities Design 3**
This course is an introduction water, sanitary and storm sewer design. The student learns how to determine agency requirements, required details, calculations, size, and model in civil 3D pipe and structure networks. Topics also include pipe trenching, bedding, backfill, and layout for the various utilities.
- CET 137 Topographic Surveying 3**
This course is an introduction to design topographic surveys required for typical civil engineering projects. The student learns how to plan the control, datums, and limits of the survey. In addition, they set up job files and acquire the required data using robotic total station equipment.
- CET 202 Finite Element Models 3**
This course is an introduction to finite element computer modeling with emphasis on static models and how they are used to determine member stresses and deflections. The student learns how to create 2D and 3D models of beams, trusses, and frames using CadreLite.
- CET 204 3D Structural Modeling 3**
This course is an introduction to three dimensional modeling of structural elements in civil 3D. The student learns how to create and orient 3D elements such as cables, beams, and footings and how to connect various elements together.
- CET 208 Civil 3D Structural Sections 3**
This course is an introduction to drafting typical structural section details. The student learns how to plan the layout and scale to draft typical sections including retaining walls, beam/column connections, and footings.
- CET 210 Contract Documents 3**
This course is an introduction to contracts used in the civil engineering field with emphasis on the basic elements of a contract and the different types of documents that make up a project contract. The student learns how the plans and specifications are enforced in the construction process.
- CET 212 Open Channel Flow 3**
This course is an introduction to open channel flow. The student learns how calculated and computer model flow in various types of open channels use in civil engineering such as pipes, ditches, and trapezoidal channels.

CREDITS

- CET 214 Drainage Reports 3**
This course is an introduction to the preparation of typical drainage reports and analyses required for typical engineering projects. The student learns how to research agency requirements and design data and prepare the required elements to be included in the report.
- CET 216 Civil 3D Storm Plans 3**
This course is an introduction to the preparation of typical drainage plans used for construction. The student learns how to research agency requirements and incorporate them into a civil 3D model. The course focuses on the pipe network modeling and analysis functions in civil 3D.
- CET 218 Erosion Control 3**
This course is an introduction to the concepts of erosion control and the best management practices used to limit sediment runoff from construction sites. The student learns how to research agency requirements and prepare an erosion control plan and maintenance schedule.
- CET 220 Road Design 3**
This course is an introduction to road design in a specific jurisdiction and site with emphasis on the ability to determine the agency requirements and design data, procure required site topographic data, and prepare a proposed road design which will meet the jurisdiction's requirements.
- CET 222 Construction Documents 3**
This course is an introduction to the preparation of construction plans required for typical engineering projects. The student learns how to research agency requirements, prepare cover and detail sheets, format plan and profile sheets, and lay out required cross sections. Civil 3D's sheet set function is introduced.
- CET 224 Advanced Corridors in Civil3D 3**
This course covers advanced corridor design techniques in civil3D. The student learns how to model roundabouts, intersections, and cul-de-sacs. Additional topics include adding trenches, retaining walls and guard rails to basic corridors.
- CET 226 Construction Staking 3**
This course is an introduction to construction staking of typical engineering projects. The student learns how to create survey data for the different elements, export alignments, and profiles and design surfaces to the data collector. The student also learns the stake-out function in the field and how to write up guard stakes.

CREDITS

- CET 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- CET 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
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This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- CET 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.
- CET 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- CET 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

COMMERCIAL TRUCK DRIVING-ENTRY LEVEL

- TRUCK 101 Safety/First Aid 3**
Students learn basic principles of safe driving principles and local and state driving laws with emphasis on the requirements of the Department of Transportation. CPR/first aid training is given.
- TRUCK 102 Introduction to the Trucking Industry 4**
This course is an introduction to the trucking industry including occupation terminology and signage; trucking company structure and its operation; and driver responsibilities on the road and at pickup/delivery points. The completion of inspection reports, daily/monthly logs, freight bills, waybills, manifests, and state accident reports is also included.
- TRUCK 103 Commercial Driver's License (CDL) 4**
Students are prepared to take the CDL tests and endorsements.
- TRUCK 104 Pre-Trip Requirements 3**
This course is an introduction to pre-trip inspection procedures used in the commercial truck driving industry. Students learn to read maps, plan destination and return trips, acquaint themselves with emergency equipment.
- TRUCK 105 Close Quarters Operation 5**
Students learn to drive in a close quarter warehouse type facility: hooking, unhooking of trailers, backing up to docks, and maneuvering in close quarters.
- TRUCK 106 Materials/Cargo I 3**
Students learn preventive maintenance techniques, fork lift operation methods, loading and unloading of cargo, and selecting appropriate hazardous cargo placards.
- TRUCK 107 City/Town Driving 5**
Students learn to operate trucks in city situations: turns, lane changes, clutching and shifting, weather conditions, and parking.
- TRUCK 108 Freeway/Open Road I 5**
Students learn to operate trucks in open road situations: freeway driving entrance and exiting, passing vehicles safely, and open road parking techniques.
- TRUCK 110 City/Town Driving 4**
Students receive additional training and gain experience in short-haul operations: in-town driving techniques, environmental factors, and parking techniques.
- TRUCK 111 Materials/Cargo II 4**
Students learn preventive maintenance techniques, fork lift operation methods, loading and unloading of cargo, and selecting appropriate hazardous cargo placards.

CREDITS

- TRUCK 112 Freeway/Open Road II 4**
Students receive additional training and gain experience in long-haul operations.
- TRUCK 113 Advanced Commercial Driving 4**
Students complete commercial administrative documentation, perform pre-trip and post-trip duties, meet dispatch system requirements, and perform fleet operations area activities.
- TRUCK 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- TRUCK 292 Independent Projects 1-5**
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- TRUCK 296 Work-based Learning Experience 1-18**
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- TRUCK 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- TRUCK 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

COMPUTER NETWORKING SYSTEMS TECHNICIAN

CNST 110 MS Client Operating Systems 5
This course introduces the student to implementation, administration, and troubleshooting Windows® client operating systems on a networked desktop or mobile platform. This course prepares students for the Microsoft 70-270 Windows XP exam, or the Microsoft 70-680 Windows 7 exam.

CNST 201 Introduction to Cisco Internetworking 5

The Cisco Networking Academy consists of four blocks. The course is designed to introduce students to the skills and information needed to design, build, and maintain small to medium-size networks. Students are introduced to the basic internetworking fundamentals.

CNST 202 Introduction to Cisco Routing Technologies 5

This is the second block of the Cisco Networking Academy. The course is designed to introduce students to the skills and information needed to design, build, and maintain small to medium-size networks. Students are introduced to routing theory and router technologies.

CNST 205 Fundamentals of Linux 5

This is an introductory course to the Linux environment including file system navigation, file permissions, command line interface, text editor, command shells, and basic network use. This includes learning how to interface a Linux operating system to interact in a Microsoft Windows network.

CNST 207 Network Infrastructure 5

This course introduces the student to installation, managing, monitoring, configuring and troubleshooting DNS, DHCP, remote access, network protocols, IP routing, and WINS in a Windows® Network Infrastructure. This course prepares students for the Microsoft Windows Server 70-291 certification exam.

CNST 209 Directory Services 5

This course introduces the student to installation, configuring, and troubleshooting the Windows® Active Directory and components such as DNS, Active Directory Sites and Services as well as Active Directory replication and security principles. This course prepares students for the Microsoft Windows 70-294 certification exam.

CNST 210 Network Security 5

This course introduces the student to implementing and administering security in a Microsoft Windows network. The student learns about security concepts such as encryption and authentication so that sensitive data may be safely sent across a wide or local area network. This course prepares a student for the Microsoft Windows 70-299 certification exam.

CREDITS

CNST 212 LAN Switching 5

This is the third block of the Cisco Networking Academy. The course is designed to introduce students to the skills and information needed to design, build, and maintain small to medium-size networks. Students are introduced to advanced routing and switching.

CNST 213 Accessing the WAN and Wireless 5

This is the fourth block of the Cisco Networking Academy. The course is designed to introduce students to the skills and information needed to design, build, and maintain small to medium-size networks. Students will be introduced to the advanced Cisco networking utilizing project based learning.

CNST 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CNST 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CNST 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CNST 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CNST 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

CNST 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

CREDITS

CNST 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

COMPUTER REPAIR & NETWORK SUPPORT

CRNS 103 A+ Essentials 4

This course prepares students for CompTIA A+ certification. This is an introduction to computer components, operating system software, computer hardware, wireless connectivity, security, safety, environmental concerns, diagnostic tools and communication skills. Virtual learning tools are integrated into the course and provide students with interactive learning experiences.

CRNS 104 A+ Practical 4

This course builds on the skills learned in the A+ Essentials course. Students learn using actual scenarios how to support PC hardware in a business setting, including installation, troubleshooting, component replacement, networking, and security. Students also learn to manage the Windows operating system. This course prepares students for A+ certification.

CRNS 106 Cisco Networking Fundamentals 5

Students develop an understanding needed to maintain small to medium-sized computer networks: IP addressing, Ethernet, and network cabling, and routed protocols. This course prepares students for the CCENT/CCNA Cisco certification.

CRNS 107 Cisco Routing Protocols and Concepts 5

Students learn routing principles and use the OSI model to examine protocols and services; build and support simple LAN topologies, apply basic principles of cabling and IP addressing, and configuration of basic network devices such as routers and switches. This course prepares students for the CCENT/CCNA Cisco certification.

CRNS 109 MS Client Operating System 5

This course introduces the student to implementation, administration, and troubleshooting Windows® client operating system as a desktop operating system in a networking environment.

CRNS 110 MS Client Operating System Lab 4

In this course students apply the principles of implementation, administration, and troubleshooting with the Windows® client operating system as a desktop operating system in a networking environment.

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CRNS 111 Advanced Projects	5
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.	
CRNS 112 Security Plus	5
In this course, students learn strategies and techniques for protecting the integrity of computer networks using cryptography, access control, authentication, security baselines, system updates, intrusion detection and other techniques for limiting security risks. This course helps prepare students for CompTIA's "Security+" certification.	
CRNS 120 Employment Preparation	5
Students are required to register with Job Service Center and develop career goals, create effective resumes, and use job search skills, methods and tools.	
CNST 212 LAN Switching	5
Students learn how to select devices for an efficient network, configure a switch for basic functionality and how to implement Virtual LANs, VTP, and Inter-VLAN routing in a converged network. Students develop the knowledge and skills necessary to implement a Wireless LAN in a small-to-medium network. This series of course prepares students for the CCENT/CCNA Cisco certification.	
CNST 213 Accessing the WAN	5
This course discusses WAN technologies required by large, enterprise networks. Students employ Cisco Network Architecture to implement and configure common protocols and how to apply WAN security concepts, principles of traffic, access control, and addressing services. Finally, students learn how to detect, troubleshoot, and correct common enterprise issues. This course prepares students for the CCENT/CCNA Cisco certification.	
CRNS 291 Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
CRNS 292 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	

CREDITS

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CRNS 297 Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
CRNS 298 Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	
COSMETOLOGY	
COSME 101 Sanitation Practices	2
This course is an introduction to the theory and practical application of chemicals for sanitation/sterilization of implements and the shop environment.	
COSME 102 Math for Cosmetologists	1
This course is an introduction to the basic mathematical concepts required in the cosmetology industry: cost to- retail markup calculations, wage and earnings problems, sales taxes, and budgets.	
COSME 103 Safety and First Aid	1
Accident prevention procedures and appropriate first aid practices are emphasized.	
COSME 104 State Law	4
Students are introduced to RCW 18.16 which governs cosmetology, barber, and manicurist/esthetician rules.	
COSME 105 The Salon Operation of a Business Theory	2
Students learn theory of salon operation of the business.	

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COSME 106 Salon Operation Management	4
Students practice management techniques required to operate a successful salon.	
COSME 107 Shampooing, Rinsing, And Conditioning Theory	2
Different types of shampoos and conditioners and their effect on hair are introduced.	
COSME 108 Shampooing, Rinsing, And Conditioning Practical	2
Students learn to select and use appropriate products based on individual client needs and desires.	
COSME 109 Manicure/Pedicure Theory	3
Theory of manicures and pedicures, infection control, and first aid is emphasized.	
COSME 110 Beginning Manicures/ Pedicure Practical	1
A continuation of the concepts introduced in COSME 109, students learn manicure and pedicure practices including the proper use of implements, materials used in manicures and pedicures, nail art, and the application of artificial nails. Principles of bacteriology and sanitation methods are emphasized.	
COSME 120 Manicures/Pedicure Practical	1
Students learn more advanced manicure and pedicure practices including the proper use of implements, materials used in manicures and pedicures, nail art, and the application of artificial nails. Principles of bacteriology and sanitation methods are emphasized.	
COSME 121 Elements of Thermo-Round Celled Practical	4
Tools and products used in thermo (round) curling are introduced.	
COSME 122 Elements of Thermo-Flat Celled Practical	3
Tools and products used in thermo (flat) curling are introduced.	
COSME 123 Elements of Design Practical	4
Students learn to develop four kinds of hairstyles based on the type of line chosen.	
COSME 124 Skin Care and Hair Removal Theory	4
Theory of skin care and hair removal, infection control and first aid is emphasized.	
COSME 125 Skin Care and Hair Removal Practical	3
A continuation of the concepts introduced in COSME 124, students learn skin care and temporary hair removal techniques as well as other principles of esthetics.	
COSME 130 Advance Skin Care and Hair Removal Practical	1
Students learn more advanced skin care and temporary hair removal techniques as well as other principles of esthetics.	

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- COSME 131 Hair and Scalp Theory 3**
This course is an introduction to the principles of hair and scalp structures, diseases, and disorders.
- COSME 132 Hair and Scalp Practical 4**
Students learn to recognize basic skin disorders/diseases and their methods of treatment.
- COSME 133 Hair Cutting Theory 3**
Students are introduced to basic techniques of hair cutting including the use of a variety of hair cutting tools.
- COSME 134 Basics of Hair Cutting Practical 4**
Students learn to cut and trim hair using a variety of basic techniques.
- COSME 135 Intermediate of Hair Cutting Practical 2**
Students practice intermediate hair cutting techniques.
- COSME 136 Advance of Hair Cutting Practical 2**
A variety of advanced hair cutting and design techniques are practiced.
- COSME 140 Hair Style Basics Theory 4**
Basic hair theory is introduced including roller placement, hot rollers, curling iron, finger waves, pin curls, pressing comb and hair design.
- COSME 141 Basic Hair Forms Practical 4**
Practical applications of basic hair forms on mannequins or live models is included: roller placement, hot rollers, curling iron, finger waves, pin curls, pressing comb and hair design.
- COSME 142 Permanents Theory 4**
This course is an introduction to permanent wave chemistry including the types and strengths of permanent wave solutions.
- COSME 143 Permanents Technique Practical 4**
Students apply the basic operations of pre- and post-permanent test curl processing, sectioning, wrapping, and applying solution and neutralizing solutions according to manufacturer's directions.
- COSME 144 Perms Practical 4**
Practical applications of permanent waves in a clinic situations is emphasized.
- COSME 145 Soft Curl Perm Practical 2**
The theory of soft perm and practical experience with clients in the clinic is emphasized.
- COSME 150 Chemical Hair Relaxing Theory 2**
Students are introduced to the different types of hair texture and strengths of hair.

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- COSME 151 Chemical Hair Relaxing Practical 4**
Students learn to apply different strengths of chemicals to straighten and condition with the least amount of hair damage.
- COSME 152 Hair Coloring and Bleaching Theory 4**
This course is an introduction to basic color principles.
- COSME 153 Hair Coloring Practical 3**
Students apply basic color principles on live models and mannequins.
- COSME 154 Bleaching Practical 3**
Students learn to methods used to remove natural or artificial hair pigment from the hair shaft.
- COSME 155 Artificial Hair Services Theory 2**
This course is an introduction to the artificial hair pieces including both human and synthetic.
- COSME 156 Artificial Hair Services Practical 2**
Students provide aesthetic services to client hairpieces, including shampooing, conditioning, styling, and proper placement on head.
- COSME 157 State Board Practical Preparation 1**
This course prepares students to take the State Board Practical test.
- COSME 158 State Board Test Review 1**
Students review the elements of the State Board Test in preparation for the written exam.
- COSME 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- COSME 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- COSME 293 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- COSME 294 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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- COSME 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.
- COSME 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- COSME 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CULINARY ARTS

- CARTS 101 Introduction to Culinary Arts 2**
This course is an introduction to the social, historical, and cultural forces that have affected the culinary, baking, and pastry professions.
- CARTS 102 Sanitation and Food Safety 2**
Students learn food production practices that are governed by changing federal and state regulations. Content includes the prevention of food-borne illness, HACCP procedures, legal guidelines, kitchen safety, facility sanitation, and guidelines for safe food preparation, storage, and reheating. Students take the National Restaurant Association ServSafe examination in this course.
- CARTS 103 Product Identification 2**
The identification and use of a variety of products includes vegetables, fruits, herbs, nuts, grains, dry goods, prepared goods, dairy products, and spices. Students also learn to identify, receive, store, and hold products.
- CARTS 104 Breakfast Service 2**
This course includes both theory and lab applications in breakfast preparation with emphasize on the organization and maintenance of a smooth workflow on the breakfast line. Food preparation areas include eggs, quick breads, meat and potatoes, grains, fruit plates, and breakfast beverages.
- CARTS 105 Fundamentals of Cooking I 4**
This course is an introduction to fundamental cooking theory and techniques. Topics to be presented include tasting, kitchen equipment, knife skills, classic vegetable cuts, thickening agents, soup and sauce ingredients, timing, station organization, plate development, culinary French terms, and food costing.

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- CARTS 106 Cooking Applications I** 4
The application of basic cooking skills includes the preparation and production of a variety of soups, stocks, and grand sauces.
- CARTS 107 Fundamentals of Table Service I** 3
This course is an introduction to table service principles with emphasis on the physical aspects of table service: types of table service, table settings, and restaurant/dining room setup. Wine, beer, coffee, tea, and non-alcoholic beverage service is also presented.
- CARTS 108 Garde Manger I** 1
This course introduces students to the preparation methods of cold foods including salads and salad dressings, cold appetizers and buffet items, and vegetable and fruit decorations.
- CARTS 109 Food Service Mathematics** 2
Food service math focuses on mathematical concepts and their application in the culinary industry: ratios, percentages, the metric system, conversion factors, yield tests, and recipe costing. Students learn to develop projections and analyze costs in yield tests and recipe pre-costing.
- CARTS 110 Fundamentals of Cooking II** 4
A continuation of the concepts introduced in Fundamentals of Cooking I, this course includes both theory and cooking techniques in product tasting; stock production; stews, broths, and advanced soups; and starches such as potatoes, grains, rice, and pasta. Timing, station organization, and culinary French terminology is also presented.
- CARTS 111 Cooking Applications II** 5
The application of basic cooking skills includes vegetable cookery by color and family, the production of stews from vegetables and grains, and advanced soup cookery using broth and bouillon. Also included are practical applications used with starches and grains: potatoes, rice, fresh pasta, and dry legumes.
- CARTS 112 Customer Service** 3
Students learn how to interact professionally with customers and co-workers and to provide quality service in a variety of situations. Emphasis is on the meaning of service, the identification of customers' needs, and the development of strategies to solve customer problems.
- CARTS 113 Introduction to Baking** 5
This course is an introduction to quick doughs, yeast products, and the basic preparation methods used with pies and cookies.

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- CARTS 114 Cost Control** 2
The course is an introduction to the principles and practices used to determine costs in a restaurant or food service organization. Topics to be presented include menu analysis and determining the cost of food, equipment, and supplies.
- CARTS 115 Food and Beverage Service** 3
This course is an introduction to all aspects of the food and beverage operation of a restaurant or food service organization. Students learn the procedures for purchasing foods and beverages in quantity and apply those skills when planning, budgeting, and managing inventory.
- CARTS 116 Menu Development** 2
The creation of menus from the perspective of concept, clarity, cost, price, and efficiency is the focus of this course. Topics to be introduced include menu descriptions, layout, design, and pricing.
- CARTS 117 Advanced Cooking Techniques** 5
Students receive instruction and practice in advanced cooking methods used to simultaneously prepare vegetables, pastas, starches, proteins, and contemporary sauces. Protein cookery methods such as braising, stewing, roasting, sautéing, broiling, grilling, and poaching are presented. Also included are culinary French terminology, station organization, plate presentation, and product tasting and evaluation.
- CARTS 118 Introduction to Catering and Banquets** 4
This course is an introduction to the catering and banquet industry with emphasis on the requirements needed to start an operation and manage its daily operations. Students develop an understanding of the organization and the equipment and responsibilities of the "cold kitchen."
- CARTS 201 Meats and Seafood** 3
This course is an introduction to a variety of meats, poultry, and seafood used in a food service operation. Students learn to identify, select, and prepare various types of meat, poultry, and fish/shellfish.
- CARTS 202 Global Food and Nutrition Issues** 2
This course gives students a global perspective of food and nutrition issues that impact our world. Contemporary topics include food production, world-wide food supply and demand, land and water availability for crops and livestock, genetically modified food, food radiation, and technological changes in agriculture.

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- CARTS 203 Ice Carving** 1
Students learn to carve ice sculptures using a variety of stencils.
- CARTS 204 Garde Manger II** 2
A continuation of the concepts introduced in CARTS 108, students prepare cold foods including salads and salad dressings, cold appetizers and buffet items, and vegetable and fruit decorations.
- CARTS 205 Restaurant Desserts** 5
The preparation and service of a variety of hot and cold desserts is emphasized. Students learn to prepare frozen and individually plated deserts as well as desserts for functions and banquets. The development of a dessert menu emphasizing variety, cost, practicality, and compatibility with other menu items is also included.
- CARTS 206 Techniques of Restaurant Cooking** 4
Basic cooking principles of quantity food preparation is the focus of this course. Skills of efficiency, organization, speed, timing, and quality volume production are also stressed.
- CARTS 207 Catering and Banquets** 4
In a kitchen/banquet environment, emphasis is on volume food production including preparation, timing, and garnishing of food for banquets. Reception food, buffet arrangements, and plate arrangements are also included.
- CARTS 208 Regional Cuisine Service** 3
Regional cuisine explores the use of indigenous ingredients in the preparation of traditional and contemporary American specialties. Students prepare, taste, serve, and evaluate traditional regional dishes.
- CARTS 209 International Cuisine Service** 3
With emphasis on ingredients, flavor profiles, preparation, and techniques, students learn to prepare, taste, serve, and evaluate traditional, regional dishes of the world. Also included is the pairing of wines, beers, and coffees to their perspective dishes.
- CARTS 210 Introduction to Management** 3
This course is an introduction to the various management topics as they relate to a food service establishment: leadership, training, motivation, delegation, problem-solving, decision-making, and conflict resolution.
- CARTS 211 Classical Cuisine** 4
This course is an introduction to the techniques, ingredients, and spices unique to classical French cuisine. Timing, organization, mise en place, and plate presentation are stressed.
- CARTS 212 Chef's Table Service** 5
This course prepares students to provide formal service in a variety of elegant settings. Emphasis is on food preparation, service, and plate presentation that reflects artistry and style.

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- CARTS 213 Cooking Applications III 5**
The application of advanced cooking skills includes vegetable cookery by color and family, the production of stews from vegetables and grains, and advanced soup cookery using broth and bouillon. Also included are practical applications used with starches and grains: potatoes, rice, fresh pasta, and dry legumes.
- CARTS 214 Employment Preparation 2**
Students develop techniques and strategies for marketing themselves in their chosen fields. Emphasis is on finding a job and then getting and keeping that job.
- CARTS 215 Wine/ Spirits 4**
This course is an introduction the serving of alcoholic beverages and their appropriate pairing with menu items. Students learn the procedures for purchasing alcoholic beverages and apply those skills when planning, budgeting, and managing bar service.
- CARTS 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- CARTS 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- CARTS 293 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- CARTS 294 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- CARTS 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

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- CARTS 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- CARTS 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.
- DATABASE TECHNOLOGY**
- DATA 101 Data Modeling\ Relational Database Design 5**
Using Access, Visio, and other data modeling tools, students learn the concepts and theory of database management systems (DBMS), including the analysis and design of relational database systems, modeling business and scientific problems and normalizing relationships in tables. Prerequisite: DATA 102,
- DATA 102 SQL 5**
Students are introduced to Structured Query Language (SQL), the industry-standard language for storing, retrieving, displaying, and updating data in a relational database. They learn to create, update, and delete computer databases. Prerequisite: Program Logic
- DATA 103 Operating Systems 5**
Students are introduced to a variety of operating systems with major emphasis on LINUX in an Oracle database environment. Students learn to install and maintain the operating system.
- DATA 201 PL/SQL 5**
This is an advanced course in Structured Query Language (SQL) used to develop script files, stored procedures, and PL/SQL units in the Oracle DBMS (Database Management System). Skills the student obtain include designing PL/SQL packages and program units and creating, executing, and maintaining procedures, packages, and database triggers. Prerequisite: DATA 102
- DATA 202 Database Fundamentals I 5**
Students learn the key tasks and functions required of a database administrator in a production environment. They learn to create implement a database, manage data, expand the size of the database, implement basic security and data integrity measures, and grant data access privileges. Prerequisite: All 100-level DATA courses or instructor permission
- DATA 203 Database Fundamentals II 5**
This is a project-oriented class with emphasis on system support, tuning, problem diagnosis, and problem resolution. Students learn to anticipate, diagnose, and resolve a variety of performance problems using real-world scenarios. Prerequisite: DATA 202

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- DATA 204 Database Fundamentals III 5**
This is a project-oriented class with emphasis on integrating all of the database administration skills learned in the previous database courses. Database certification exams are emphasized during this course. Prerequisite: DATA 203
- DATA 208 SQL Server Administration 5**
This course is an overview course in creating, maintaining or administering an SQL server database. Prerequisite: DATA 101, DATA 102
- DATA 290 Capstone Project 5**
This course offers students an opportunity to work independently on a culminating project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DATA 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DATA 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DATA 293 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DATA 294 Independent Projects 20-100 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DATA 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

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DATA 297 Work-based Learning Seminar 1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

DATA 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

DENTAL ASSISTING

DNTA 110 Introduction to Dental Assisting 2
This course is an introduction to the dental assisting profession including the role of the dental assistant in the dental office, legal and ethical considerations, HIPPA regulations, and dental terminology. Prerequisite: Must be admitted into the Dental Assisting core program.

DNTA 111 Infection Control 5

This course is an introduction to the application of standard infection control practices including aseptic techniques in the dental office. Infection control, hazardous waste management and safety standards are emphasized. Prerequisite: Must be admitted into the Dental Assisting core program.

DNTA 112 Biomedical Sciences 5

This course is an introduction to the biomedical sciences and their application to the dental assisting industry: anatomy and physiology, microbiology, embryology, histology, and morphology. Prerequisite: Must be admitted into the Dental Assisting core program. Prerequisite: Must be admitted into the Dental Assisting core program.

DNTA 113 Dental Sciences I 3

Students are introduced to the fundamentals of oral pathology, pediatric dentistry, nutrition, and pharmacology. Prerequisite: Must be admitted into the Dental Assisting core program.

DNTA 120 Introduction to Chairside Assisting 4

Students are introduced to the fundamentals of chairside assisting including patient management, assessment of the patient's medical health history, medical emergencies, and the student's role in patient care. Prerequisite: Must be admitted into the Dental Assisting core program.

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DNTA 121 Chairside Assisting I 4

Students are introduced to the fundamentals of chairside assisting including recording dental chart information, and the skills necessary to assist in the delivery of dental services to patients in a pre-clinical environment. Prerequisite: Must be admitted into the Dental Assisting core program.

DNTA 122 Dental Materials I 3

This course is an introduction to fixed and removable prosthodontics with instruction in the physical properties and manipulation of dental materials used in diagnostic and prosthetic procedures. Fabrication of study models and the manipulation of gypsum products are emphasized. Prerequisite: Must be admitted into the Dental Assisting core program.

DNTA 124 HIV/AIDS Training 1

Approved Washington State Department of Health mandated HIV/AIDS training course. Prerequisite: Must be admitted into the Dental Assisting core program.

DNTA 129 Dental Sciences II 3

This course is an introduction to various dental sciences including; dental radiography, preventative health care, selected specialty procedures, dental dam, and restorative procedures. Prerequisite: Successful completion of the first trimester.

DNTA 130 Dental Sciences II 2

This course is continuation of the various dental sciences to include; dental anesthesia, cavity classification, rotary instruments and restorative materials. Prerequisite: Successful completion of the first trimester.

DNTA 131 Chairside Assisting II 3

A continuation of the concepts introduced in DNTA 121, students learn to process new patients, chart information, and prepare rotary instruments. Prerequisite: Successful completion of the first trimester.

DNTA 132 Chairside Assisting III 2

Students learn more advanced chairside skills including identification of hand instruments and tray setups. Prerequisite: Successful completion of the first trimester.

DNTA 133 Chairside Assisting IV 2

Students learn to apply dental dams and prepare anesthetics. Prerequisite: Successful completion of the first trimester.

DNTA 140 Restorative Services I 3

This course is an introduction to the properties and techniques for the usage of common restorative materials. Prerequisite: Successful completion of the first trimester.

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DNTA 141 Restorative Services II 2

This course is an introduction to the materials and techniques used to place temporary restorations. Prerequisite: Successful completion of the first trimester.

DNTA 142 Restorative Services III 2

Students learn to place and remove matrix and wedges. Prerequisite: Successful completion of the first trimester.

DNTA 143 Dental Materials II 2

Students learn advanced techniques in fixed and removable prosthodontics, including the manipulation of final impression materials, and the cementation of fixed appliances. Prerequisite: Successful completion of the first trimester.

DNTA 144 Dental Radiology 5

Students learn both theory and practical applications in the area of production radiation including the taking and processing of dental x-rays. Content also covers digital radiography, quality assessment, and technique errors. Students mount and evaluate radiographs using the paralleling and bisecting techniques. Radiographs are exposed on manikins and lab patients. Prerequisite: Successful completion of the first trimester.

DNTA 145 Chairside Assisting V 3

An advanced chairside assisting course related to restorative procedures, coronal polish and fluoride, and selected specialty procedures. Prerequisite: Successful completion of the first trimester.

DNTA 150 Dental Sciences III 3

An introduction to the specialties of oral surgery and orthodontics. This course will include background, procedures and instrumentation. Prerequisite: Successful completion of the second trimester.

DNTA 151 Clinical Experience I 5

Students are assigned to off campus dental offices in the community or the Bates Dental Clinic. Clinical assignments are designed to enhance students' competence in performing dental assisting functions with emphasis on chairside assisting, radiograph technique, patient management skills, and professionalism. Students are assigned two clinical experiences. Prerequisite: Successful completion of the second trimester.

DNTA 152 Dental Materials III 4

This course has emphasis on the fabrication of a variety of provisional crowns as well as the fabrication of bleaching trays. Prerequisite: Successful completion of the second trimester.

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- DNTA 160 Clinical Experience II 5**
A continuation of DNTA 151, students acquire clinical practice to perfect their skills in performing dental assisting functions including expanded functions. General dentistry is emphasized. Weekly seminars are held to evaluate and review clinical applications. Prerequisite: Successful completion of the second trimester as well as DNTA 151.
- DNTA 161 Dental Office Administration 5**
Students learn the basic business administration skills necessary to manage a dental office. Customer service, appointment scheduling, patient files, record management, maintaining an inventory system, and familiarization with dental software programs are included. The use of mathematics to maintain records and accounts is emphasized. Prerequisite: Successful completion of the second trimester.
- DNTA 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DNTA 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DNTA 293 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DNTA 294 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DNTA 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.
- DNTA 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

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- DNTA 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.
- DENTAL LAB TECHNICIAN**
- DENLB 101 Introduction to Dental Lab Technology 3**
This course is an introduction to basic concepts of the dental laboratory industry: history, ethics, and jurisprudence; terminology, identification, safety practices, and the use of dental tools and machinery.
- DENLB 102 Health and Safety 2**
This course is an introduction to the safety practices used in the dental laboratory industry including OSHA/WISHA requirements and the sterilization and disinfection methods used to prevent disease.
- DENLB 103 Dental Anatomy 3**
This course is an introduction to skeletal, muscular, edentulous, and temporomandibular joint anatomy.
- DENLB 104 Dental Materials 2**
This course is an introduction to the various materials used in the first year of the dental laboratory program.
- DENLB 105 Dentures – Casts/Trays/Rims 4**
This course is an introduction to the preliminary steps involved in denture construction.
- DENLB 106 Denture Setup 3**
This course is an introduction to the articulation, tooth selection, and arrangement of denture teeth.
- DENLB 107 Denture Processes 4**
This course introduces the student to festooning, flasking, boil-out, packing, processing, deflasking, selective grinding, finishing and polishing a denture.
- DENLB 108 Immediate Dentures 3**
This course introduces the student in the fabrication of an immediate denture. The purpose of an immediate denture is to provide the patient with a denture upon extraction of the last remaining teeth.
- DENLB 109 Denture Repair 2**
This course introduces the student to denture repair, relines, and rebase techniques.
- DENLB 110 Esthetic Arrangement 3**
This course introduces the student to modification of the idealized setup so that the positions and relationships of the teeth enhance the age, sex, and personality of the individual.

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- DENLB 111 Introduction to Orthodontics 3**
This course is an introduction to the various mal-occlusion situations, the fundamentals of wire bending, and soldering.
- DENLB 112 Orthodontic Appliances – Fixed 3**
This course introduces the student to pouring Orthodontic Study Models and Orthodontic Appliances that are fixed.
- DENLB 113 Orthodontic Appliances – Removable 2**
This course introduces the student to orthodontic appliances that are removable.
- DENLB 114 Introduction to Removable Prosthetic Devices (RPD) 2**
This course is an introduction to removable partial dentures and its components. The student will learn how to survey, the principals of dentistry, physics, and the materials used to construct an RPD.
- DENLB 120 RPD Survey and Design 2**
This course assists the student in understanding RPD design, various lever systems, and the forces applied to the oral tissues.
- DENLB 121 Refractory Cast Production 2**
This course is an introduction to the step-by-step process in duplicating the master model in order to pour a refractory cast in a special investment material.
- DENLB 122 Wax Pattern Construction 3**
This course is an introduction transferring the design of the partial from the master cast to the refractory model, use of adhesive, and applying plastic patterns.
- DENLB 123 RPD Processes 3**
This course is assists the student in Spruing, Investing, Casting, Finishing and Polishing RPD Frameworks.
- DENLB 124 Frame Construction 2**
This course introduces the student to various RPD frame fabrication, designing, duplicating, waxing, spruing, investing, electropolishing, finishing, and polishing according to Kennedy Classifications. Student will fabricate one RPD entirely with tooth setting and processing.
- DENLB 201 Plaster Carving 5**
This course is an introduction to forming the shapes and contours of a 3-dimensional tooth form.
- DENLB 202 Dental Materials II 2**
This course is an introduction to the many materials used in the second year of the dental laboratory program.

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DENLB 203 Coping Fabrication	5
This course is an introduction to the under-structure design and fabrication of porcelain crowns.	
DENLB 204 Introduction to Gold Crowns	2
This course is an introduction to the procedures in fabricating gold crowns and bridges.	
DENLB 205 Gold Crown Waxing	5
This course is designed to provide the step-by-step procedures in waxing a full gold crown/bridge.	
DENLB 206 Gold Crown Techniques	5
This course will assist the student in following the step by step processes of gold crown/bridge fabrication.	
DENLB 207 Introduction to Porcelain	5
This course is an introduction to the under-structure design for porcelain fused to metal crowns, waxing, investing, finishing, de-gassing, and application of opaque porcelain. The student will also learn about color in dentistry.	
DENLB 208 Porcelain Techniques	4
Students learn and apply the step-by- step processes of porcelain fabrication.	
DENLB 209 Advanced Porcelain Techniques	4
Students learn and apply the step- by- step process of pressing all porcelain crowns and veneers.	
DENLB 210 Advanced Technologies	4
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 211 Advanced Dentures	3
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 212 Advanced Orthodontics	3
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 213 Advanced RPDs	3
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	

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DENLB 214 Advanced Crown and Bridge	3
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 215 Advanced Dental Ceramics	3
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 291 Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 292 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 293 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 294 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
DENLB 296 Work-based Learning Experience	1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
DENLB 297 Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	

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DENLB 298 Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	
DENTURIST	
DNTU 101 Asepsis, Infection, Hazard Control	2
Students train in safety procedures including OSHA/WSHA and infection control compliance for dentist's offices and laboratories. This includes a special emphasis on the materials, hazardous materials, interpreting MSDS's, equipment, and procedures mandated in the dental environment for protection of staff and patients from infection by infectious disease organisms.	
DNTU 102 Biological Concepts	3
Students study cell biology, microbiology, developmental embryology, and histology with an emphasis on the oral cavity	
DNTU 103 Introduction to Complete Denture Prosthodontics	3
This course covers the basic anatomy of the residual ridge as well as primary and final impressions of these ridges using the proper materials and trays. Impressions are poured and trimmed with proper materials and techniques.	
DNTU 104 Baseplates and Occlusion Rims	2
Students fabricate base plates and rims using various materials in preparation for setting teeth	
DNTU 105 Tooth Selection and Set I	3
Students learn proper tooth selection and ordering techniques and then start their required lab setups.	
DNTU 106 Dental Materials I	2
This course discusses the various acrylics and materials involved in the processing and finishing of patient appliances.	
DNTU 107 Denture Techniques I	2
This course covers the wax up, processing , and other lab steps needed to supply a proper prosthesis for a patient.	
DNTU 108 Complete Denture Fabrication I	2
Students complete waxups and flasking of practice cases in complete and partial dentures.	
DNTU 109 Dental Office Management I	1
Students learn proper patient record keeping and individual policy and informational hand outs are completed in preparation for actual clinical cases.	

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DNTU 110 Head Anatomy and Physiology I 2
Students are introduced to the anatomy and physiology of the head, neck, temporomandibular joint, muscles, nerves, blood vessels, lymphatic system, skeletal system, digestive system, and dental anatomy related to sinuses, glands, teeth, periodontal structures, and other oral structures.

DNTU 111 Tooth Selection and Set II 1
A continuation of the concepts introduced in DNTU 105, students practice with further required lab setups.

DNTU 112 Medical Emergencies 3
Students demonstrate first aid and CPR procedures in simulated situations. This includes the provider CPR/first aid course. Health histories are taken and analyzed for information important patient care.

DNTU 113 Denture Techniques II 2
Students learn how to do relines and repairs and fabricate flippers. Students assist in actual patient cases when available.

DNTU 114 Complete Denture Fabrication II 1
Students learn to process denture and partials cases as well as pre-insertion procedures.

DNTU 115 Partial Dental Casts 2
Students are introduced to the area of removable partial dentures including theory, clinical classification, and evaluation.

DNTU 116 Framework Design - RPD 3
Students learn to survey study models and design practical cases.

DNTU 117 Dental Office Management II 2
Students learn proper scheduling, billing, and HIPPA privacy requirements.

DNTU 118 Clinical Denture Procedures I 2
Students learn proper room setup and tear-down procedures for clinical cases along with clinical instrument processing.

DNTU 119 Dental Impressions Procedures I 2
Clinical impressions are performed on patient cases assigned by instructors.

DNTU 120 Head Anatomy and Physiology II 3
This course completes the remaining anatomical systems not covered in DNTU 110.

DNTU 121 Tooth Selection and Set III 1
Students complete their required practice lab setups.

DNTU 122 Complete Denture Fabrication III 2
Students learn how to break out and polish processed cases in preparation for insertion.

DNTU 123 Complete Denture Repair I 2
Students complete denture repairs on practical and clinical cases.

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DNTU 124 Casts - Partial 2
After completing cast designs, students learn and perform proper block-out techniques in preparation for cast duplication of practical cases.

DNTU 125 Oral Pathology 2
Students get an introduction into pathologic disease processes with emphasis on those with oral signs and symptoms. Students learn to differentiate between normal and diseased tissues. Students complete the required state Aids Awareness course and test.

DNTU 126 Clinical Denture Procedures II 2
Students perform the required lab and clinical work on assigned patient cases toward their program completion.

DNTU 127 Dental Impressions Procedures II 2
Student perform impressions, bite registrations and proper mounting on clinical cases assigned during this semester.

DNTU 128 Fabrication Clinical I 1
Students complete the required clinical cases assigned to them this semester.

DNTU 129 Polish Methods - RDP Frames 1
Students learn proper techniques to fit, adjust, and polish frameworks prior to processing.

DNTU 130 Acrylic Prostheses Repair 2
Repair techniques for acrylic prostheses are learned.

DNTU 131 Wax Patterns - Partial 4
Students perform framework waxups on assigned practical cases.

DNTU 132 Teeth Arrangement - RPD 2
Students learn to set teeth in partials opposing dentures, other RPDs or natural teeth.

DNTU 133 Finish Methods - RPD 3
Students learn to properly flask, process, and remount RPD cases in preparation for insertion.

DNTU 134 RPD Frames Fabrication 2
Students are given the option of casting their practical cases or studying flexible partial systems.

DNTU 135 Oral Pathology II 3
Students finish their study of various oral pathologies and learn how to do proper referrals and consultations.

DNTU 136 Clinical Denture Procedures III 2
Students perform the required lab work on assigned patient cases.

DNTU 137 Tooth Selection/Evaluation 2
Students learn how to evaluate, select, and set teeth in RPDs opposing natural dentition.

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DNTU 138 Fabrication Clinical II 2
Students complete the required clinical cases assigned them during this semester.

DNTU 201 Complete Denture Repair II 2
Students learn the proper techniques used to accomplish complex repairs on dentures.

DNTU 202 Dental Materials - RPD 2
Students study both heat and cold cure materials and methods in RPD construction.

DNTU 203 RPD Repair Methods 3
Students learn those techniques unique to partial dentures.

DNTU 204 Dental Office Management III 2
Students complete their record treatment documentation on their clinical cases and transfer any unfinished cases.

DNTU 205 Denture Adjustments 1
Students perform post-insertion adjustments of their clinical cases as needed.

DNTU 206 Ethics and Jurisprudence 1
In this course, federal and state laws are discussed as they relate to licensing. Ethics pertaining to a licensed healthcare professional are discussed.

DNTU 207 Malocclusions 2
Students study different occlusal schemes and perform face-bow remounts and occlusal corrections of clinical cases where needed.

DNTU 208 Clinical Denture Procedures IV 2
Students continue to complete their clinical cases and are given opportunities to practice unique, specialized technique found in industry.

DNTU 209 Dental Materials II 2
Students learn specialized materials and techniques required in the most demanding cases.

DNTU 210 Geriatric Patient Needs 1
Students learn the many unique requirements of the geriatric patient, both physically and psychologically.

DNTU 211 Fabrication Clinical III 2
Students complete their remaining clinical cases to reach the minimum required number.

DNTU 212 Alternative RPD Systems 2
Alternatives to metal framework RPDs are discussed in the course.

DNTU 213 Implant and Precision Attachments 1
Students study the history of implants and the numerous systems available for use.

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DNTU 214	Advanced Special Services	1
Students learn advanced concepts and techniques related to denture practices.		
DNTU 215	Advanced Dental Appliances	1
Students discuss and when available work on advanced cases such as gasket retained dentures, swing-lock and dual-path RPDs.		
DNTU 290	Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning and increased proficiency in the subject area chosen.		
DNTU 292	Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning and increased proficiency in the subject area chosen.		
DNTU 293	Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.		
DNTU 292	Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.		
DNTU 296	Work-based Learning Experience	1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.		
DNTU 297	Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.		
DNTU 298	Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.		

DIESEL/HEAVY EQUIPMENT MECHANIC

DIESEL 103	Introduction to Hydraulic Systems	5
This course is an introduction to hydraulic/pneumatic theory, component design, and service practices for hydraulic systems. This includes instruction in pumps, motors, valves, safety, seals, cylinders, and filters. Concurrent enrollment: DIESEL 104		
DIESEL 104	Diagnosis and Testing of Hydraulic Systems	2
A continuation of the concepts introduced in DIESEL 103, students learn to diagnose and test a variety of hydraulic components and systems. Concurrent enrollment: DIESEL 103		
DIESEL 105	Introduction to Diesel Technology	1
This course is an introduction to the diesel industry with emphasis on occupational safety principles and WISHA and Department of Ecology guidelines. Concurrent enrollment: DIESEL 103, 104, 106, 107, 108, and 109 or instructor permission.		
DIESEL 106	Engine Construction	5
This course is an introduction to basic engine theory and operation and their application to the maintenance and repair of gasoline and diesel engine systems common to heavy equipment. Concurrent enrollment: DIESEL 103, 104, 105, 107, 108, and 109 or instructor permission.		
DIESEL 107	Engine Systems	1
A continuation of the concepts introduced in DIESEL 106, students learn to identify engine systems and their component parts. Concurrent enrollment: DIESEL 103, 104, 105, 106, 108, and 109 or instructor permission.		
DIESEL 108	Engine Reassembly	4
Students perform procedures for overhauling heavy-duty diesel engine including disassembly, cleaning and inspection, adjustments, and reassembly. Concurrent enrollment: DIESEL 103, 104, 105, 106, 107, and 109 or instructor permission.		
DIESEL 109	Fuel Systems	2
This course is an introduction to hydro-mechanical and electronic diesel fuel systems with emphasis on the analysis of fuel system components and system operational characteristics. Concurrent enrollment: DIESEL 103, 104, 105, 106, and 107 or instructor permission.		
DIESEL 110	Introduction to Air Brakes	2
The operating principles of pneumatic brakes including ABS, roll stability, and collision avoidance are presented.		

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DIESEL 111	Introduction to Basic Electrical Systems	4
Students are introduced to the fundamentals of electricity and its application in the diesel and heavy equipment industry. The uses of specialty equipment to troubleshoot and repair are included with emphasis on industry safety requirements and the use of protective devices. Concurrent enrollment: DIESEL 112 or instructor permission		
DIESEL 112	Electrical Systems Application	4
Practical applications include working with cranking circuits, type A & B charging circuits, conventional and electronic spark ignition, component operation, testing and industry-required repairs. Concurrent enrollment: DIESEL 111 or instructor permission		
DIESEL 113	Electronic Engine Systems	3
Students are introduced testing of common input and output electronic components and to use specialty tools and equipment used for code retrieval; service processes and repair are introduced. Concurrent enrollment: DIESEL 111 and 112 or instructor permission.		
DIESEL 114	Mobile Air Conditioning Systems	3
Students are introduced to the EPA 609 requirements with emphasis on the achievement of certification. Component identification, operation, testing, and repair methods to meet industry regulations are included. Concurrent enrollment: DIESEL 111, 112, 113, or instructor permission.		
DIESEL 115	Introduction to Power Trains	1
This course is an introduction to the Power Trains Program. Emphasis is given to shop and tool safety, and the fundamentals of precision measurements and fasteners.		
DIESEL 116	Manual Transmission Service	3
Students provide fundamental transmission service on single and twin countershaft transmissions including disassembly, failure analysis, preventive remedies and reassembly to OEM specifications. Concurrent enrollment: DIESEL 115, 117, 118, 119, 120, 121, 122 or instructor permission.		
DIESEL 117	Automated Manual Transmission Service	2
Students are introduced to design characteristics, operation and basic troubleshooting of automated manual transmissions. Concurrent enrollment: DIESEL 115, 116, 118, 119, 120, 121, 122 or instructor permission.		
DIESEL 118	Clutch Service	2
Students learn the fundamentals of medium and heavy duty clutch operation, diagnosis of various symptoms and causes of clutch failures and provide remedies to prevent future failures. Concurrent enrollment: DIESEL 115, 116, 117, 119, 120, 121, 122 or instructor permission.		

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DIESEL 119 Automatic Transmission Service 2
Students gain a fundamental understanding of automatic and power shift transmissions and torque converters including the basics of operation, design characteristics and failure analysis of both hydro-mechanical and electronically controlled units.
Concurrent enrollment: Diesel 115, 116, 117, 118, 120, 121, 122 or instructor permission.

DIESEL 120 Driveline Service 1
Students gain a fundamental understanding of the principles of operation, maintenance procedures, and analysis of vibrations for driveline systems. Concurrent enrollment: Diesel 115, 116, 117, 118, 119, 121, 122 or instructor permission.

DIESEL 121 Differentials/ Final Drive 2
Students provide fundamental differential/ final drive system service including disassembly, failure analysis, and reassembly to O.E.M. specifications. The various styles, applications, and operation of mechanical final drives used in construction and agricultural equipment are also included. Concurrent enrollment: Diesel 115, 116, 117, 118, 119, 120, 122 or instructor permission.

DIESEL 122 Wheel End Service 1
Students learn the correct inspection and installation procedures for standard and unitized wheel ends used on heavy duty trucks. Concurrent enrollment: Diesel 115, 116, 117, 118, 119, 120, 121 or instructor permission. NOTE: Students must complete 100-level coursework with a cumulative 2.0 GPA before continuing into the 200-level coursework.

DIESEL 201 Basic Vehicle Service 11
Course emphasis is on the theory and practices for the tune up and troubleshooting of diesel engines including air, fuel, lube and cooling systems.

DIESEL 203 Advanced Service Applications 5
Students apply their understanding of various systems, the relationship between systems, their components, and the procedures for providing service to engines and fuel systems, power trains, hydraulic systems, electrical systems, air conditioning and refrigeration systems, and the procedures for performing periodic maintenance.

DIESEL 204 Employment Preparation 2
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

DIESEL 205 Advanced Service Techniques 15
Student demonstrate capabilities to inspect (troubleshoot, analyze/diagnose, test), remove, and repair or replace components or systems to within manufacturer's specifications. Service and preventive maintenance techniques are applied to the following systems: engines and fuel systems, power trains, hydraulic systems, electrical systems, and air conditioning and refrigeration systems.

DIESEL 252 Special Projects 5
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.

DIESEL 291 Practical Applications 1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DIESEL 292 Independent Projects 1-5
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.

DIESEL 293 Independent Projects 1-5
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.

DIESEL 294 Independent Projects 1-5
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.

DIESEL 296 Work-based Learning Experience 14
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

DIESEL 297 Work-based Learning Seminar 1
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

DIESEL 298 Work-based Learning – No Seminar 15
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

DIGITAL MEDIA

DIGIT 101 Digital Imaging 2
Students learn to create and enhance digital images using a scanner and digital imaging software.

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DIGIT 102 Image Editing 5
Students learn to edit and manipulate digital images using several image-editing applications.

DIGIT 103 Graphic Generation I 5
This course is an introduction to the various techniques used to set up and operate various graphic generation devices: character generators, paint box generators, and still-store devices.

DIGIT 104 Introduction to Computers 5
Students are introduced to digital media concepts featuring digital media hardware and software tools and techniques, survey of digital media applications, and issues relating to the use of digital media. They learn to use text, graphics, audio, video, animation, and interactivity in a project.

DIGIT 120 Introduction to Digital Media Concepts 4
This course is an introduction to the methods used to communicate ideas through the use of computer-based interactive multimedia technology.

DIGIT 121 Production Process I 5
The production process and various program formats are presented. The computers and software used to develop storyboards, budgets, fact documents, time-lines, and schedules is also presented.

DIGIT 122 Production Process II 4
Students learn to create various forms of production materials from idea to the finished project: public service announcements (PSA), commercials, news stories, and music videos.

DIGIT 123 Production Process III 4
Students initiate and complete a variety of media projects (CD ROM, video, web) using advanced production process skills.

DIGIT 130 Production Editing I 3
This course is an introduction to the methods used to set up editing and support equipment to edit on machine-to-machine systems as well as computer controlled "AB roll" systems.

DIGIT 131 Production Editing II 3
A continuation of the concepts introduced in DIGIT 131, students apply advanced editing skills to a variety of equipment and systems.

DIGIT 132 Digital Media – Video 5
This course is an introduction to the fundamentals of digital video, video recording, video processing, video delivery, and the incorporation of digital video into a computer-based media project.

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- DIGIT 133 Advanced Editing Project 5**
Students conduct and complete an advanced digital editing project for a datacast application.
- DIGIT 140 Copyright and Ethics 2**
This course is an introduction the legal and ethical concepts of copyright issues as they pertain to the broadcast/datacast industry.
- DIGIT 141 Desktop Presentations I 5**
This course is an introduction to the methods used to apply visual elements, edit, and modify presentations.
- DIGIT 142 Desktop Presentations II 5**
A continuation of the concepts introduced in DIGIT 141, student apply advanced methods to create and modify presentations.
- DIGIT 143 Digital Media – Animation 5**
Students learn to add motion to digitally produced images to enhance the intent of a computer-based project.
- DIGIT 145 Digital Media – Audio 5**
This course is an introduction to the fundamentals of digital sound, sound recording, sound processing, sound delivery, and the incorporation of sound into a computer-based media project.
- DIGIT 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DIGIT 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DIGIT 293 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- DIGIT 294 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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- DIGIT 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.
- DIGIT 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- DIGIT 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

ELECTRICAL CONSTRUCTION

- ELCON 101 Introduction to Electrical Construction 3**
This course is an introduction to the electrical construction field. OSHA, WISHA, and occupationally specific safety guidelines and standards are emphasized.
- ELCON 102 Applied Physical Science 5**
This course is an introduction to the physical sciences as they apply to the electrical field: electrical theory, Ohm's law, Watt's law, and the relation of current, resistance, and voltage.
- ELCON 103 Hand and Power Tools 4**
Students are introduced to tools, equipment, and processes common to the electrical industry. The safe operation and care of hand and power tools is emphasized.
- ELCON 104 Electrical Service Installation 4**
Students learn to install basic service components. Students will install load centers, over current protection devices and terminate wires.
- ELCON 105 Electrical Components 4**
Students will learn how to select the proper size load centers, conductor sizes for the load centers and select the proper size over current protective devices needed.
- ELCON 106 Introduction to Residential Wiring 3**
This part of the course is an introduction to the field of residential wiring methods, materials, and basic techniques needed for residential wiring.
- ELCON 107 National Electric Code 4**
The National Electrical Code and its application to the safe installation of electrical conductors and equipment is presented.

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- ELCON 108 NFPA 70E Standard 4**
This course offers a comprehensive study of NFPA 70E Standards and its safety application to the electrical field.
- ELCON 109 Residential Design 3**
Practical application of National and regional electrical codes as they apply to residential buildings.
- ELCON 110 Residential Wiring Techniques 3**
This is a continuation of ELCON 106 learned concepts. An advanced class on residential wiring techniques such as advanced planning, conductor sizing, special tool usage, the electrical bidding permitting process.
- ELCON 111 Systems Troubleshooting 3**
Students will learn the art of troubleshooting electrical systems using the proper testing equipment and techniques in a safe manner.
- ELCON 112 Introduction to Blueprint Reading 3**
This course introduces students to basic concepts of blueprint reading with emphasis on terminology, symbols, and lines commonly found on electrical schematics and plans.
- ELCON 113 Blueprint Reading Applications 5**
A continuation of the concepts introduced in ELCON 202, students learn to interpret prints found in a set of construction drawings and understand their relationship to various electrical installations.
- ELCON 200 Technical Math 5**
Students learn how to use math to solve electrical equations. Students will also learn to solve electrical problems or solve basic electrical functions using electrical math.
- ELCON 201 Specialty Tools 4**
Students learn to operate common electrical field specialty tools including a variety of power tools, testing and measurement equipment, and commercial and industrial equipment.
- ELCON 202 Introduction to Blueprint Reading 3**
This course introduces students to basic concepts of blueprint reading with emphasis on terminology, symbols, and lines commonly found on electrical schematics and plans.
- ELCON 204 Commercial Wiring 3**
This course is a basic introduction to the field of commercial wiring.
- ELCON 205 Commercial Codes and Regulations 3**
Students learn the basic national and local electrical codes pertaining to commercial buildings.
- ELCON 206 Commercial Material Identification 3**
Students are introduced to commercial specific construction materials.

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ELCON 207 Commercial Installation	3
Students are introduced to installation standards specific to commercial buildings.	
ELCON 208 Industrial Wiring	3
This course is a basic introduction to the field of industrial wiring.	
ELCON 209 Industrial Material Identification	3
Students are introduced to industrial specific construction materials.	
ELCON 210 Industrial Installation	3
Students are introduced to installation standards specific to industrial applications.	
ELCON 211 Industrial Hazards	3
This course introduces students to industrial specific safety hazards and techniques to avoid them.	
ELCON 212 Motors and Controllers	4
This course introduces the student to electrical motors and the various ways motors are started, stopped and controlled for electrical installations.	
ELCON 213 Project Estimation	5
Students learn the basics of jobsite estimation, including material estimation, labor and time management.	
ELCON 214 Control Circuits	3
Students learn how, why, and various ways motors can be controlled.	
ELCON 215 Motor Controls	3
Students learn techniques to build, wire and troubleshoot various motor controllers.	
ELCON 216 Transformers	3
This course offers students basic knowledge of electrical transformers, why they are needed, how to install them and basic working knowledge of electrical transformation.	
ELCON 217 Advanced Motor Controls	3
This course builds on concepts learned in ELCON 212 and ELCON 215. Students learn advanced techniques to motor control such as variable frequency drives and Programmable logic.	
ELCON 220 Advanced Projects I	10
Students participate in professional applications project.	
ELCON 221 Advanced Projects II	10
Students participate in professional applications project.	
ELCON 222 Advanced Projects III	10
Students participate in professional applications project.	

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ELCON 291 Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ELCON 292 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ELCON 293 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ELCON 294 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
ELCON 296 Work-based Learning Experience	1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
ELCON 297 Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
ELCON 298 Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	

ELECTRICAL ENGINEERING TECHNICIAN

ETRIC 110 Applied Communications	3
This course is an introduction to communication skills and their application to the electrical engineering field. Areas of emphasis include methods of improving communication, clarity, and graphic aids.	

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ETRIC 111 Technical Communications	4
Students learn written and oral communication techniques to express technical information in engineering. The development of writing skills necessary to plan and write technical formatted documents is emphasized. Students also develop resumes and cover letters.	
ETRIC 112 Electrical Math Fundamentals	2
Mathematics specific to engineering is introduced including Ohm's Law, electronic units and measurements, application of fractions, decimals, percentage, and whole numbers. Calculations with negative numberings, squares, square roots, and exponents are emphasized, as well as series, parallel, and combination circuit.	
ETRIC 113 Electrical Math	3
This course focuses on electronic formulas and solutions. Resistance of wires, types, and sizes are applied to voltage drop calculations, transformers, and meter movements.	
ETRIC 114 Fundamentals of Electricity	2
This course provides an overview of atomic structure, electrical properties, and electrical theory. Parallel, series, and combination circuit are studied. Students are introduced to resistors, conductors, and problems are solved using Ohm's Law.	
ETRIC 115 Applied Electrical Math	5
Application of math concepts to engineering problems in electrical circuits, power efficiency, wire sizing, and grounding is emphasized. Problems in inductance, capacitance, and impedance are solved. Transformers are studied and three-phase calculations are performed. Logic control concepts and solid state circuits are introduced.	
ETRIC 122 Construction Specifications	4
This course is an introduction to the content, format, and basic principles of specification development and interpretation. Areas of emphasis include specifications as a legal and technical construction. Terms of design and construction, as well as the interrelationship of specifications in bidding are also included.	
ETRIC 124 Drafting Applications	3
A continuation of the concepts introduced in ETRON 130, students apply such technical drafting practices as lettering, metric construction, technical sketching, orthographic projection, sections, and auxiliary views.	
ETRIC 125 Engineering Drafting	3
Students are introduced to the theory and application of dimensioning and tolerances, pictorial drawing, and preparation of construction drawings.	

CREDITS

ETRIC 126 Electrical Principles 3

This course is an introduction to basic electronic principles including the vocabulary of electronics, processes, and principles. Magnetism, batteries, meters, and AC/DC principles are studied. Problems with conductors, insulators, and voltage drops are solved. Series, parallel, and combination circuits are explored.

ETRIC 127 Applied Electrical Principles 5

Principles of inductance, capacitance, and impedance are studied. Students are introduced to transformers and power supplies. Solid state circuits, devices, and logic are studied.

ETRIC 130 Fundamentals of Drafting 2

Students learn drafting terms and select and use drafting equipment, as well as lettering, line work, sheet layouts and scales.

ETRIC 131 Applied Physics 2

Students learn properties of light, sound, temperature, and heat transfer as they relate to the electronics industry. Principles of light, refraction, reflection, and color are studied in their relationship to light sources and luminaires.

ETRIC 132 CAD Fundamentals 2

This course is an introduction to the hardware, software, operation, and technical language of computer-aided drafting. Drawing setup, file management, and drawing aids are introduced as well as line and text commands.

ETRIC 134 Elements of Physics 2

This course is an introduction to the mechanics and properties of matter including magnetism, electricity, fiber optics, atomic structure and nuclear energy as they relate to engineering. Sound and wave motion, light and optics are applied to design of lighting, low voltage signal systems, and power circuits.

ETRIC 140 Intermediate CAD 3

A continuation of the concepts introduced in ETRIC 132, students use CAD systems to produce and edit drawings. Passwords, log on, and system security are introduced. Commands include text editing, drawing rotation, and mirror and cross hatching.

ETRIC 141 National Electrical Code 3

The course is an introduction to the National Electric Code including terminology, definitions, format, and blueprint reading. Basic electrical code for various buildings classifications are covered. Wiring methods and materials, protective devices, selection, and sizing of conduit and conductors are also included.

CREDITS

ETRIC 142 Codes Applications I 3

Requirements of overload and fault current protection are studied. Branch circuits and feeders for motors and general power loads are selected in accordance with codes. Grounding and bonding requirements are covered.

ETRIC 143 Fundamentals of Power Systems 3

Students learn to draft one-line and riser diagrams. Emphasis is on the selection and application of wires, over current devices, raceways, and equipment.

ETRIC 201 Fundamentals of Lighting Systems 4

Lighting design, color rendition, visual comfort, efficiency of sources, aesthetic appeal and photometric performance of fixtures are emphasized.

ETRIC 202 Fundamentals of Low-Voltage Systems 3

Fire alarm, security, voice, and data components and layouts are reviewed.

ETRIC 203 Fundamentals of High-Voltage Systems 4

Transmission and distribution voltage systems and equipment are introduced. Load calculations are performed for primary voltage systems.

ETRIC 204 Essentials of Electrical Systems Design 3

This course is an introduction to the basic principles of electrical systems design including, project budgets, organization, and scheduling. Sheet layout and drawing order are determined. Preliminary lighting calculations are performed and preliminary electrical drawings are made.

ETRIC 225 Advanced CAD Operations 3

Students use CAD systems to produce engineering drawings using layers, masks, and groups. Symbols and x-reference are applied; drawings are printed and plotted.

ETRIC 226 Electrical System Design Applications 3

Design projects and apply skills to draft, select, specify equipment, lighting calculations/design, service and power distribution calculations/design, and systems design and layout. Prepare construction cost estimates and bids.

ETRIC 227 Introduction to Commercial Electrical Systems 4

Commercial project development, design team concepts, timelines, and sequence of design are emphasized. Students learn layout and circuiting of basic power devices. Luminaires are compared and selected.

CREDITS

ETRIC 230 Intermediate Electrical System Design 4

The focus of this course is on three-phase loads: calculation and circuiting of heating equipment and motor loads. Students work in project design teams to select and draft lighting fixture and controls, power distribution equipment, and circuiting.

ETRIC 234 CAD Design Applications 3

Students use CAD to draw electrical diagrams and schedules. Floor plans, power, and lighting plans are drawn and edited; notes and legends are added.

ETRIC 235 Codes Applications II 4

THE NEC is studied in depth through student design projects. Code requirements are applied to the design of heating and motor circuits and feeders. Lighting and controls are specified in accordance with codes. Code compliant service entrance wires and equipment are selected. Codes for hazardous and specialized locations are interpreted and applied.

ETRIC 240 Commercial Electrical Design Applications 4

Students assist project design teams to design and draft electrical systems and power distribution equipment. Lighting is selected, final calculations are made and circuited, and fixture and panel schedules are developed.

ETRIC 241 Advanced Electrical System Design 4

Advanced students lead project design teams. The building service is designed and main panel selected. Circuits and panel loads are balanced, final load calculations are added as the drawings are completed. Dry-type transformers are introduced. Special design factors are incorporated for hazardous locations.

ETRIC 242 Fundamentals of Cost Estimating 2

The course is an introduction to concepts and current cost estimating practices. Emphasis on elements of electrical construction, competitive bidding, and complete and accurate time and material take-offs. Various forms and formats are introduced.

ETRIC 243 Construction Cost Estimating 3

This course is an introduction to the estimate and preparation of the electrical project bids. Impact of specifications, substitutions, prime and sub-contractors are stressed. Labor factors and materials cost data base are introduced.

CREDITS

ETRIC 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ETRIC 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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ETRIC 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

ETRIC 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

ETRIC 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

ELECTRICAL POWER & PROCESS AUTOMATION/ ELECTRONICS TECHNICIAN**ELPP 110 Electricity and Magnetism 2**

Between the years 1600 and 1800, mankind's knowledge of electricity was limited to observations of electrostatic and magnetic phenomena. This course follows those observations through the development of modern electrical theory and how a better understanding of that theory is being used to create intelligent and efficient energy delivery systems.

ELPP 115 DC Circuit Analysis 5

This course introduces electrical units of measure and how those units are interrelated. It also explores the five basic types of electrical circuits and the rules used to solve for electrical quantities throughout those circuits. All electrical devices and systems are built on a thorough understanding of these circuits.

ELPP 118 Mathematics for Electrical Trades 5

Fluid power covers both pneumatics and hydraulics, and fluid power circuits have many characteristics in common with electric circuits. This course introduces fluid power devices, circuits, and units of measure using a combination of interactive computer graphics and real world systems.

ELPP 120 Alternating Current 2

Alternating current (AC) forms the basis of electric power transmission and distribution throughout the world. Using computer graphics and active systems, this course explores the generation of single-phase AC and the specialized components that make it all possible.

ELPP 125 AC Circuit Analysis 5

Like DC, AC can be applied to five different types of circuits. AC circuits involve a broader range of components than DC circuits and require a more in-depth mathematical analysis to understand. This course visually and mathematically explores how constantly changing electrical values interact with each other over time.

ELPP 126 Analog Electronics 5

Analog electronics explores electronic devices and circuits that work with continuously variable physical quantities. This includes semiconductor materials, sensors, transducers, diodes, transistors, thyristors, Op-amps and other linear integrated circuits. Circuits include power supplies, regulators, DC-to-DC converters, amplifiers, oscillators, signal conditioners, phase-locked loops, modulators and mixers.

CREDITS

ELPP 128 Polyphase AC Power Generation & Distribution 5

Virtually all of the world's electrical power generation comes from three-phase generators. Having voltages and currents displaced in time requires a more complex circuit analysis than single-phase involving vectors. This course explores polyphase generators, transformers, and power distribution systems using mathematical and graphical analysis, along with specialized test equipment.

ELPP 135 Mechanics 5

Mechanical systems are an integral part of automation, where materials must be moved as part of the manufacturing process. The physics of classical mechanics are explored in this course along with units of measure and simple machines. A mixture of computer animations and practical experiments bring this subject to life.

ELPP 140 Motors and Control Systems 5

Motors are the backbone of material handling systems. This course examines the operating principles of common DC and AC motors, how they are wired into electrical systems, and common electromechanical control circuits. It then moves on to more sophisticated electronic control using smart motor controllers and VFDs (variable frequency drives).

ELPP 145 Construction Practices and Print Reading 5

Control panels and systems are built to standards established by the NEC (National Electrical Code) and UL (Underwriters Laboratories). This course explores the techniques of good panel building for control systems ranging from simple electromechanical motor starters to advanced control using PLCs (Programmable Logic Controllers).

ELPP 210 Digital Logic 5

Digital control is at the heart of virtually all modern automated systems. This course looks at digital from within the mind of the machine and prepares students for programming PLCs, microcontrollers, intelligent sensors, and industrial networks. Bitwise logic functions, Boolean algebra, Karnaugh maps, and truth tables are explored in detail.

ELPP 215 Programmable Logic Controllers (PLCs) 5

Programmable logic controllers are industrial computers designed to replace hard-wired circuits used in past years. This course focuses on Allen Bradley's popular SLC 500 and MicroLogix controllers using LogixPro and RSLogix 500 software. A smooth transition from ladder diagrams to ladder logic establishes the basis for more sophisticated programming models.

CREDITS

ELPP 225 Sensors and Transducers 4
Process variables, like temperature, pressure, flow, depth, rotational speed, and object detection depend on sensors and transducers to provide information to the control system. This course explores the operating principles of these devices and how they are implemented in practical control systems.

ELPP 230 Programming Methodologies 5
Programming is a structured science that requires discipline and planning. This course introduces Statement Lists, Flowcharting, Finite State Machines, and Venn diagrams as methods of developing efficient, effective programs in a timely manner. Once the program flow is determined, it is translated to the appropriate development software.

ELPP 231 PLC Programming Projects 5
The RSLogix 500 simulator used in class, LogixPro, comes with seven real world interactive programming projects: Door Simulator, Silo Simulator, Traffic Simulator, Batch Simulator, Dual Compressor Simulator, Bottle Line Simulator, and Elevator Simulator. In addition, multiple labs using RSLogix and RSLinx from Rockwell Automation finalize the programming projects.

ELPP 238 Embedded Controllers 5
Microcontrollers embedded in dedicated systems number in the billions. This course focuses on the two main architectures in use today: Harvard and von Neumann. Development boards from Microchip and Freescale Semiconductor provide opportunities to explore brushless DC motor control, touch sensing, LCD displays, Digital Signal Processing, wireless data, and robotics.

ELPP 240 Industrial Robots using the Fanuc Robotics 200iC 4
This course centers on a FANUC Robotics 200iC industrial robot and covers safety, moving the robot in 3D space, collision detection, Teach Pendant Programming (TPP), and end-of-arm tooling. Students gain an understanding of the controller's internal data and file structures. Concurrent Enrollment: ELPP 241

ELPP 241 FANUC Robotics Roboguide 3
Roboguide is a program development environment for FANUC robots that consists of a virtual 3D world where robot operations are simulated via the user program using avatars. Other 3D objects can be added for the robot to interact with. Concurrent Enrollment: ELPP 240

ELPP 250 Independent Study 5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

ELPP 251 Independent Study 5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ELPP 254 Supervisory Control & Data Acquisition (SCADA) 5
SCADA is a technology that is used to monitor and control large processes, such as power generation, that may cover thousands of square miles. This course presents the nomenclature and architecture, the system's building blocks, wireless communications between sensors and control, monitoring software, and data base development.

ELPP 255 Instrumentation 5
Process control requires the precise monitoring of process variables. This course examines the measurement and control of temperature, liquid level, flow rate, pressure, pH, and weight. Process control diagrams, equipment maintenance, smart instrument calibration, documentation, and loop tuning with PID control are offered using equipment from major manufactures.

ELPP 256 Alternative Energy 5
Alternative energy is a rapidly expanding field where modern innovation has allowed older technologies to evolve at an exponential rate. This course explores electric power generation using wind power, solar power, and fuel cells. Embedded control of servo mechanism, inverters, buck-boost regulators, and power management are all key components.

ELPP 257 AutoCAD Electrical 5
AutoCad Electrical is CAD software developed specifically for Industrial Controls. As part of the Autodesk community, this course gives EPPA students an opportunity to work with a first-rate design program while learning to adhere to standards developed by UL, NFPA (NEC), and the IEC.

ELPP 258 Automation Studio 5
Automation Studio is a powerful software package from Famic Technologies used to design and test Allen Bradley RSLogix 500 programs with electrical, pneumatic, and hydraulic circuits. The resulting animations visually mimic the actions of the circuits they represent and can be used with confidence to understand equipment operation.

ELPP 259 Microsoft's Robotics Studio 5
Robotics Studio is an integrated development environment for creating robotics control programs and 3D simulations. Novice developers start programming with VPL (Visual Programming Language) and then advance to higher level languages using Visual Studio. An exciting mixture of gaming and industrial technologies, this product serves hobbyist, scientist, and industrial professionals.

CREDITS

ELPP 260 Programming in Alice 5
NXT Robots sport a powerful 32-bit microcontroller. Entry-level users develop programs for their mechanical creations using an object oriented development environment from LabView. This course employs a variety of challenging robotic designs. Fully supported by Microsoft's Robotics Studio, NXT robots can also be programmed in C or assembly.

ELPP 261 Microchip's MPLAB IDE 5
This course centers on programming Microchip's DSPs and high-end microcontrollers using MPLAB C. Projects cover Brushless DC motor control, Mechatronics, Touch Sensing, Speech Processing, Interactive Process Simulations, and Video Simulations. Completion of ELPP 230 and ELPP 238 is highly recommended as a prerequisite for this course.

ELPP 262 Wireless Sensor Networks 5
Wireless sensors are becoming increasingly popular in industrial networks; smart buildings, security, access control, inventory control, RFID, SCADA, and robotics. This course explores various data formats and topologies employing ZigBee and other data protocols to create reliable and secure wireless networks that move data from a variety of sensors.

ELPP 268 Industrial Networks 5
Industrial process control requires that equipment be located over large areas. The controlling equipment needs to communicate with sensors and distributed control racks. This is accomplished using industrial data networks, such as Modbus, Device Net, ControlNet, Profibus, Fieldbus, and Industrial Ethernet. ZigBee wireless and short distance protocols are also covered.

ELPP 291 Practical Applications 1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ELPP 292 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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CREDITS

ELPP 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ELPP 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

ELPP 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

ELPP 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

ELECTRONIC EQUIPMENT SERVICE TECHNOLOGY**EEST 101 Safety Principles 3**

This course is an introduction to safety practices required when working in the electronic equipment environment.

EEST 102 Applied Math 5

This course is an introduction to mathematical theory and applications as they relate to the electronic circuits and the electronic equipment field.

EEST 103 Electronics Principles I 5

This course is an introduction to the theory and fundamentals of basic DC electronic circuits.

EEST 104 DC Electronics 4

This course is an introduction to the theory and fundamentals of Ohm's law, series, and parallel circuits.

EEST 105 AC Electronics 5

This course is an introduction to the theory and fundamentals of the sine wave, wavelength, and the frequency of the AC circuit.

EEST 106 Inductors and Capacitors 4

This course is an introduction to the theory and fundamentals of the reactance of the inductor and the capacitor in the AC circuit.

CREDITS

EEST 107 Electronics Principles II 5

This course is an introduction to the theory and fundamentals of basic AC electronic circuits.

EEST 108 Amplifiers and Transistors 4

This course is an introduction to the theory and fundamentals of basic amplifiers and transistors.

EEST 109 Electronic Devices 2

This course is an introduction to the theory and fundamentals of basic electronic devices: such as diodes, transistors, SCR, triac, and FET.

EEST 110 Introduction to Programmable Logic Controllers 5

This course is an introduction to the theory and fundamentals of programmable logic controllers with emphasis on applying and using ladder logic programming.

EEST 201 Electronic Principles - Automation 5

This course is an introduction to the theory and fundamentals of basic Ladder logic programming.

EEST 202 Antenna and Satellite Systems 3

This course is an introduction to the theory and fundamentals of basic antenna and satellite systems.

EEST 203 Magnetic and Laser Media 3

This course is an introduction to the theory and fundamentals of basic magnetic and laser media including magnetic tape players and CD players.

EEST 204 RF Receivers and Audio Amps 4

This course is an introduction to the theory and fundamentals of basic RF receivers and audio amplifiers including synthetic and conventional receivers, audio amplifier circuits, conventional tube type, transistor, and FET circuits.

EEST 205 Video Projection 1

This course is an introduction to the theory and fundamentals of basic video projection and Raster Scan.

EEST 206 Emerging Technologies 3

Students learn about such current technologies as RFID, laser technology, IT applications in the medical field, security systems, and smart home technology. Course content may vary depending upon technological advances.

EEST 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

EEST 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

EEST 293 Independent Projects 1-5

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EEST 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

EEST 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

EEST 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

EEST 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

ELECTRONICS ENGINEERING TECHNICIAN**ETRON 110 Applied Communications 3**

This course is an introduction to communication skills and their application to the electronic engineering field. Areas of emphasis include methods of improving communication, clarity, and graphic aids.

ETRON 121 Technical Communications 4

Students learn written and oral communication techniques to express technical information in engineering. The development of writing skills necessary to plan and write technical formatted documents is emphasized. Students also develop resumes and cover letters.

CREDITS

ETRON 130 Fundamentals of Drafting 2
Students learn drafting terms and select and use drafting equipment, as well as lettering, line work, sheet layouts and scales.

ETRON 131 Drafting Applications 3
A continuation of the concepts introduced in ETRON 130, students apply such technical drafting practices as lettering, metric construction, technical sketching, orthographic projection, sections, and auxiliary views.

ETRON 132 Engineering Drafting 3
Students are introduced to dimensioning and tolerances, pictorial drawing, and preparation of production and assembly drawings.

ETRON 140 Electronic Math Fundamentals 3
Mathematics specific to engineering is introduced including Ohm's Law, electronic units and measurements, application of fractions, decimals, percentage, and whole numbers. Calculations with negative numberings, squares, square roots, and exponents are emphasize, as well as series, parallel, and combination circuit.

ETRON 141 Math for Electronics 2
This course focuses on electronic formulas and solutions. Resistance of wires, types, and sizes are applied to voltage drop calculations, transformers, and meter movements.

ETRON 142 Applied Electronic Math 5
Application of math concepts to engineering problems is emphasized. Inductance, capacitance, and impedance problems are solved. Students are introduced to Kirchoff's, Venini, and Norton Theorems, and logic control problems are solved.

ETRON 150 Fundamentals of Electricity 2
This course provides an overview of atomic structure, electrical properties, and electrical theory. Parallel, series, and combination circuit are studied. Students are introduced to resistors, conductors, and problems are solved using Ohm's Law.

ETRON 151 Electronic Principles 3
This course is an introduction to basic electronic principles including the vocabulary of electronics, processes, and principles. Magnetism, batteries, meters, and AC/DC principles are studied. Problems with conductors, insulators, and voltage drops are solve. Series, parallel, and combination circuits are explored.

ETRON 152 Applied Electronic Principles 5
Principles of inductance, capacitance, and impedance are studied. Students are introduced to transformers and power supplies. Kirchoff, Venini, and Norton's laws and theorems are applied. Solid state circuits, devices, and logic are studied.

CREDITS

ETRON 160 Elements of Physics 2
This course is an introduction to the mechanics and properties of matter including magnetism, electricity, fiber optics, atomic structure and nuclear energy as they relate to engineering. Electrical units, physical properties, energy, and measurement are emphasized.

ETRON 161 Applied Physics 2
Students learn properties of light, sound, temperature, and heat transfer as they relate to the electronics industry.

ETRON 210 CAD Fundamentals 2
This course is an introduction to the hardware, software, operation, and technical language of computer-aided drafting. Drawing setup, file management, and drawing aids are introduced as well as line and text commands.

ETRON 211 Intermediate CAD 3
A continuation of the concepts introduced in ETRON 210, students use CAD systems to produce and edit drawings, Passwords, log on, and system security are introduced. Commands include text editing, drawing rotation, and mirror and cross hatching.

ETRON 212 Advanced CAD Operations 3
Students use CAD systems to produce engineering drawings using layers, masks, and groups. Symbols and x-reference are applied; drawings are printed and plotted.

ETRON 213 CAD Applications in Design 3
Students use CAD systems to draft electronic diagrams and schematics. Printed circuit boards are drawn and notes, schedules, and legends are applied.

ETRON 220 Semiconductors, Diodes and Transistors 3
Students are introduced to solid state devices and semiconductors. Principles of special purpose diodes, diode theory, and circuits are explored. Transistor fundamentals, biasing circuits, and bi polar transistors are analyzed.

ETRON 221 Amplifiers in Electronics 4
Voltage, AC, power, and operational amplifier functions are presented. Principles of differential amplifier circuits and emitter followers are studied.

ETRON 222 Principles of FETs JFETs and MOSFETs 3
Free electron and hole charges and majority and minority carriers are studied. Principles of FETs and JFET applications and switching are introduced. Principles of MOSFET depletion, enhancement and discrete and integrated circuits are applied.

ETRON 223 Thyristors, Frequency Feedback, and Filters 4
Filters terminology, types, and responses are introduced. Thyristor types, principles, and frequency effect are studied along with negative feedback.

CREDITS

ETRON 224 Oscillators, Timers, and Power Supplies 4
Students are introduced to oscillation theory, loop gain, and phase relations. Timer IC, RC, and LC operations and applications, regulator types, displays, and basic topologies are emphasized. Switching regulator principles are applied to improve power efficiency.

ETRON 230 Essentials of Number Systems 2
Decimal, binary, and hexadecimal numbering systems are introduced. Types and operations of logic gates are described. Boolean and Demorgan's theorems are applied to logic circuits and Karnaugh mapping is used to reduce equations.

ETRON 231 Data Control, Flip-Flops, Counters, and Shift Registers 3
Decoder/encoder, multiplexer/demultiplexer ICs and Schmitt Trigger principles are applied. Flip-flops are studied and counter and shift register circuits are analyzed. Data sheets are used to determine IC chip applications and specializations.

ETRON 232 Principles of Analog and Binary Interfacing 3
Analog and binary systems are studied with the principles of converter ICs and JFET applications. Operation and uses of analog transducers are introduced and problems are solved using interfacing principles.

ETRON 233 Microprocessors, Memory, Software, and Hardware 3
Practical application of microprocessor principles, applications, and principles of microprocessor architecture, memory programming, and hardware are studied. Principles of comparators, storage, RAM language, and displays are covered.

ETRON 240 Essentials of Drafting for Electronics 3
Graphic representation of electronic components, functions, and data is introduced. Views, hole charts, tolerances, tabular dimensioning, materials, and methods are applied.

ETRON 241 Electronic Units, Materials, Computers, Components, and Standards 3
Standards, codes, designations, CAD technology, and software are applied to electronic design and drafting.

ETRON 242 Schematics and Diagrams 4
This course is an introduction to the types of schematic diagrams, and symbols used in electronics. Line types, harnesses, cables, wires, and insulation types and sizes are studied. Logic rules area applied and truth tables are constructed.

ETRON 243 Programmable Controllers 4
This course is an introduction to programmable controllers, transducers, and digital logic to relay logic principles. Systems with programmable controllers and robotics are designed and drafted.

CREDITS

ETRON 244 Printed Circuit Boards 5

Printed circuit board terminology, design techniques and processes, documentation, and materials are introduced. Board geometry, component placement, routing, and specifications are studied. Computers and CAD are used to design and draft printed circuits and boards.

ETRON 245 Electronic Packaging 3

Techniques of sheet metal layout, dimensioning, fasteners, and connection processes are introduced. Interior and exterior parts, chassis marking, and panels are studied.

ETRIC 291 Practical Applications 1-18

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CREDITS

ELECTRONICS TECHNICIAN**ETECH 101 Introduction to Electronics 2**

This course is an overview of electronics including terminology, general safety, and applied math principles specific to the industry.

ETECH 102 DC Circuits 5

This course is an introduction to the theory and practical applications of DC circuits including resistors and resistive circuits, series and parallel circuits, meter movements, ammeters, voltmeters, VOMs, DMMs and Wheatstone Bridges.

ETECH 103 AC Circuits 5

This course is an introduction to the theory and applications of AC circuits, capacitors, coils, transformers, oscilloscopes, signal generators, and component checkers. Prerequisite: ELECT 111, 112, 113 or department chair approval.

ETECH 104 Analog Circuits 5

This course is an introduction to analog circuits. Topics include devices, diodes, transistors, power supplies, simple amplifiers, operational amplifiers, and thyristors. Voltage and current mode techniques are also introduced.

ETECH 105 Digital Circuits 5

This course is an introduction to the basic concepts of numbering systems and digital devices such as gates, counters and flip-flops. Microprocessors, memory circuits, and microprocessor applications are also included.

ETECH 106 Microcontrollers 5

The course is an introduction to the fundamentals of microcontroller-based systems, including applications, architecture, number systems, and languages.

ETECH 107 Employment Preparation 3

This course is an introduction to communication concepts that emphasize resume writing and the development of job search skills.

ETECH 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FACILITIES MAINTENANCE ENGINEER**FACM 101 Safety Principles 3**

This course is an introduction to the safety practices and procedures as required by state and federal standards for building maintenance.

FACM 102 Fundamentals of Electricity 3

This course is an introduction to the fundamentals of electricity and their application to the building maintenance industry: Ohm's law, basic circuitry fundamentals, and the National Electrical Codes.

CREDITS

FACM 104 Introduction to Blueprint Reading 5

Students learn to read, interpret, and create graphic drawings including building and machine blueprints, technical sketching, engineering drawings.

FACM 105 Engineering Drawings 4

A continuation of the concepts introduced in FACM 104, students learn to create commercial plans: plot, floor, elevation, and section.

FACM 106 Introduction to Hydraulics/Pneumatics 5

This course is an introduction to basic fluid and hydraulic principles and their application to the building maintenance field.

FACM 107 Machine Components 5

This course is an introduction to industrial maintenance of machine components including predictive and preventive maintenance, lubrication requirements, and close tolerance dimensioning.

FACM 108 Mechanical and Machine Maintenance 5

Students learn the processes used to maintain centrifugal, rotary, and reciprocating pumps and other mechanical devices.

FACM 109 Tools and Equipment 4

This course is an introduction to the tools and equipment used in the building maintenance occupation. The safe use, maintenance, and storage of a variety of tools and equipment are emphasized.

FACM 110 Introduction to Building Maintenance 2

Students are introduced to the basic maintenance and repair methods used in the building maintenance profession.

FACM 111 Building Maintenance and Repair Methods 5

The maintenance, repair, and minor remodeling techniques to structures and their non-mechanical elements of building complex are emphasized.

FACM 120 Custodial Services 4

Students learn all aspects of cleaning and maintaining the visible areas of a building complex.

FACM 121 Grounds Keeping 5

Students learn to select and use proper equipment for maintaining turf, shrubs, and plants; sprinkler systems; and basic asphalt and concrete maintenance.

FACM 122 Electrical Service 4

Students learn to troubleshoot, test, maintain, and repair electrical services within a building.

CREDITS

FACM 123 HVAC Systems	5
This course is an introduction to the fundamentals of heating and air conditioning systems with emphasis on the adjustment of air flow, troubleshooting of minor problems, and preventive maintenance methods.	
FACM 124 Introduction to Appliance Repair	2
This course is an introduction to the electrical design of components and mechanical components of common domestic appliances.	
FACM 125 Appliance Repair Methods	5
A continuation of the concepts introduced in FACM 124, students learn to repair a variety of common domestic appliances.	
FACM 126 Boiler Operations and Certification	12
This course is an introduction to the basic principles of low and high-pressure steam boiler systems with emphasis on routine operation, maintenance, and emergency procedures. Upon successful completion of the coursework, students may test for certification as a Class V Boiler Operator/Fireman.	
FACM 127 Advanced Boiler Operations	5
Students learn advanced boiler methods of low and high-pressure steam boiler systems with emphasis on routine operation, maintenance, and emergency procedures. Upon successful completion of the coursework, students may test for certification as a Class IV Boiler Operator/Fireman.	
FACM 220 Remodeling	2
Students learn light residential and commercial design and remodeling methods including the bidding process.	
FACM 221 Building Materials	2
Students are introduced to types of building materials (rough cut and finished) and apply that knowledge in the construction of rafters and floor joists. Cement and cement finish are also included.	
FACM 222 Small Business Planning	3
This course is an introduction to basic elements of small business planning: license, bonding, insurance, and customer service.	
FACM 230 Computers in Industry	3
Students are introduced to the use of computers in maintenance management.	
FACM 231 Computer Applications	4
Students learn to create preventive maintenance schedules using a spreadsheet application.	

CREDITS

FACM 291 Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
FACM 292 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
FACM 293 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
FACM 294 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
FACM 296 Work-based Learning Experience	1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
FACM 297 Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
FACM 298 Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	

CREDITS

FASHION CONSTRUCTION & DESIGN

FASH 101 Introduction to Textiles	2
This course is an introduction to textiles used in fashion construction. Students will apply their knowledge of fabric content, fabrication, properties, design, finishing, care and application to sewing projects.	
FASH 102 Beginning Quilting	2
This course is an introduction to the tools, equipment, cutting, and sewing techniques used in beginning quilting projects. Practical applications using contemporary construction techniques are applied to a variety of traditional and abstract designs.	
FASH 103 Fashion Accessories – Home Decor	2
Students learn contemporary methods of layout and the sequencing of assembling soft textile projects utilized in home or office interior decorating.	
FASH 104 Pattern Alterations – Upper Body	2
Students are introduced to the principles and applications used in altering commercial top patterns to fit individual measurements: tops, shirts, jackets, and vests. Concurrent enrollment: FASH 105 and FASH 106	
FASH 105 Beginning Construction – Woven Tops and Vests	4
Practical application using contemporary ready-to-wear construction techniques in the methods of layout and sequencing of assembling beginning skill level woven tops and vests are emphasized. Concurrent enrollment: FASH 104 and FASH 106	
FASH 106 Beginning Construction – Unlined Jackets	2
Practical application using contemporary ready to wear construction techniques in the methods of layout and sequencing of assembling beginning skill level unlined jackets are emphasized. Concurrent enrollment: FASH 104 and FASH 105	
FASH 107 History of Fashion Design – Fall/Winter Trends	1
Students are introduced to the current year's worldwide fall/winter trends by on-line fashion shows and periodical layouts. The practical application includes research and the production of storyboards.	
FASH 108 Sewing Lab I	4
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student.	
FASH 120 Beginning Construction – Nightwear	2
Practical application using contemporary ready- to- wear construction techniques in the methods of layout and sequencing of assembling beginning skill level nightwear are emphasized.	

FASH 121 Designers of Influence – Pre-19th Century 1
 Students are introduced to the fashion designers of influence, pre-19th century. The practical application includes research and the production of storyboards.

FASH 122 Pattern Alterations – Lower Body 2
 Students are introduced to the principles and applications used in altering commercial bottom patterns to fit an individual's measurements: skirts and pants. Concurrent enrollment: FASH 123 and FASH 124.

FASH 123 Beginning & Intermediate Construction - Skirts 3
 Practical application using contemporary ready-to-wear construction techniques in the methods of layout and sequencing of assembling beginning skill level skirts are emphasized. Concurrent enrollment: FASH 122 and FASH 124.

FASH 124 Beginning Construction - Pants 2
 Practical application using contemporary ready-to-wear construction techniques in the methods of layout and sequencing of assembling beginning skill level pants are emphasized. Concurrent enrollment: FASH 122 and FASH 123

FASH 125 Sewing Lab II 4
 This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student.

FASH 130 History of Fashion Design – Spring /Summer Trends 1
 Students are introduced to the current year's worldwide spring/summer trends by on-line fashion shows and periodical layouts. The practical application includes research and the production of storyboards.

FASH 131 Intermediate Construction – Unlined Jackets 2
 Practical application using contemporary ready-to-wear construction techniques in the methods of layout and sequencing of assembling intermediate skill level unlined jackets are emphasized. Prerequisites: FASH 104 and FASH 106

FASH 132 Intermediate Construction – Pants 2
 Practical application using contemporary ready-to-wear construction techniques in the methods of layout and sequencing of assembling top and bottom knitwear are emphasized. Prerequisite of FASH 104 and FASH 122

FASH 133 Beginning Knitwear 2
 Practical application using contemporary ready to wear construction techniques in the methods of layout and sequencing of assembling top and bottom knitwear are emphasized. Prerequisites: FASH 104 and FASH 122

FASH 134 Sewing Fundamentals 2
 Practical application of the fundamental skills and sewing concepts that are necessary to the most basic understanding of how clothing is constructed.

FASH 135 Sewing Lab III 4
 This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student.

FASH 140 Designers of Influence – 19th Century to Present Day 1
 Students are introduced to the fashion designers of influence, 19th century to present day. The practical application includes research and the production of storyboards.

FASH 141 Fashion Accessories – Purses and Bags 2
 Practical application using contemporary construction techniques in the methods of layout and sequencing of assembling purses and bags are emphasized.

FASH 142 Beginning and Intermediate Construction – Dresses 4
 Practical application using contemporary ready to wear construction techniques in the methods of layout and sequencing of assembling beginning and intermediate skill level dresses are emphasized. Prerequisites: FASH 104, FASH 105, FASH 122, and FASH 123

FASH 143 Intermediate Construction – Tops and Shirts 2
 Practical application using contemporary ready-to-wear construction techniques in the methods of layout and sequencing of assembling beginning and intermediate skill level tops and shirts are emphasized. Prerequisites: FASH 104 and FASH 105

FASH 144 Lined Coats and Jackets 2
 Practical application using contemporary ready-to-wear construction techniques in the methods of layout and sequencing of assembling lined coats and jackets are emphasized. Prerequisites: FASH 104, FASH 106, FASH 122, and FASH 131

FASH 145 Sewing Lab IV 4
 This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student.

FASH 291 Practical Applications 1-18
 This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FASH 292 Independent Projects 1-5
 This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FASH 293 Independent Projects 1-5
 This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FASH 292 Independent Projects 1-5
 This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FASH 296 Work-based Learning Experience 1-18
 Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

FASH 297 Work-based Learning Seminar 1-2
 Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

FASH 298 Work-based Learning – No Seminar 1-18
 This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

FIRE PROTECTION ENGINEERING TECHNOLOGY

FPET 101 Introduction to Fire Protection Engineering 3
 This course is an introduction to the fire protection engineering industry and its role in the protection of building. Policies and requirements of the Bates' program is also presented.

CREDITS

FPET 102 Building Construction	5
This course is an introduction to the building design principles and how the application of fire protection systems and methods are used to protect individual buildings. Students learn the various parts of buildings and how those are graphically depicted and verbally described on construction documents.	
FPET 103 Research Methods	5
Students explore various methods of accessing pertinent information relative to fire protection engineering technology including general and special library collections, Internet resources, and governmental holdings.	
FPET 104 History of Fire Protection	1
This course presents a brief history of fire protection, early attempts at regulating behaviors, and using technological solutions to the fire problem, from ancient time to present day practices.	
FPET 105 Occupational Safety	1
This course is an introduction to the hazards of personal safety associated with the fire protection industry.	
FPET 106 Applied Math and Science	4
This course is an introduction to math and science and their application to the fire protection engineering technology industry including basic mechanics, applied plane and solid geometry, basic principles of college level physics, and the concepts of statics and dynamics.	
FPET 107 Alarm and Suppression System Design I	5
This course is an introduction to the design of fire alarm and suppression systems.	
FPET 108 Design Seminar	2
This course provides students with the opportunity to explore in depth some of the specific principles of design introduced in FPET 107 and 112.	
FPET 109 Drafting Fundamentals I	4
Students learn to use basic computer-aided drafting (CAD) from the setup of the workspace to the printing of the finished product.	
FPET 110 Codes and Standards	5
Students learn what codes and standards are applicable to buildings with emphasis on particular model codes and standards adopted as the building and fire codes of Washington State applicable to fire protection, including those developed by the International Codes Council (ICC) and the National Fire Protection Association (NFPA).	

CREDITS

FPET 111 The Practice of Fire Protection	5
This course introduces students to certain business concepts such as contracts and certifications, and additionally includes job hunt and career advancement strategies.	
FPET 112 Sprinkler Design I	5
Student learn the fundamentals of hydraulics, basic sprinkler system layout, and the principles of mathematically designing and calculating these systems	
FPET 113 Drafting Fundamentals II	3
A continuation of the concepts introduced in FPET 109, students practice more intermediate aspects of computer-aided drafting (CAD). Prerequisite: FPET 109.	
FPET 114 Introduction to Inspection and Testing	3
Students are introduced to the concept of the inspection and testing of emergency, stand-by fire protection equipment and why regularly scheduled inspections and tests are critical.	
FPET 115 Calculation Seminar	2
This course is a continuation of the mathematical calculations for design as introduced in FPET 107 and 112.	
FPET 116 Drafting Fundamentals III	3
Students are introduced to universal drafting fundamentals that are applicable to both hand drafting and CAD and their application to architectural drawings: scaling, title blocks, legends, schedules, and line weights, etc. Sketching and the concept of the engineer's notebook are also explored. Prerequisite: FPET 113	
FPET 117 Fire Protection Project/ Applications	3
Students are given the opportunity to explore any fire protection application of interest to the individual student. The instructor and the student will negotiate the parameters of the independent project.	
FPET 200 Advanced Codes	3
This course provides a forum where advanced students can explore aspects of codes and standards in a small group, informal discussion format. The topics of discussion are chosen by the students, either from instructor suggestions or from their own interests.	
FPET 201 Projects I	4
Course emphasis is on single-family residences. Students design sprinkler and smoke alarm systems in two single-family dwellings, duplexes, or townhouses to include street connections and a partial submittal package. Students specializing in sprinkler design are particularly encouraged to complete the entire four projects courses series and FPET 205.	

CREDITS

FPET 202 Projects II	4
A continuation of the FPET 201, course emphasis is on other than single-family residential occupancies. Students design sprinkler and fire alarm systems for a multi-family dwelling and another residential occupancy such as a small hotel or dormitory building to include street connections and a partial submittal package.	
FPET 203 Projects III	4
A continuation of FPET 201 and 202, course emphasis is on commercial and industrial occupancies. Students design sprinkler and fire alarm systems for two small commercial or industrial occupancies such as a restaurant, warehouse, and strip malls to include street connections and a full submittal package.	
FPET 204 Projects IV	4
A continuation of FPET 201, 202, and 203, students design a sprinkler, a standpipe, and a fire alarm system for a mixed-use occupancy. The mixed use includes a parking garage, a mercantile floor, at least one level of business occupancy, and at least two residential floors.	
FPET 205 Practical Applications I - Design	4
Students explore individual design topics in depth with topics relating to special considerations of overall design.	
FPET 206 Practical Applications II - Commissioning and Inspections	3
Students explore specific topics relating to commissioning and inspections individual design topics in depth with topics relating to special considerations of overall design. Typical topics may include NFPA 3 and the process of building commissioning or the limits and responsibilities of the inspector under an NFPA 25 contract.	
FPET 207 Practical Applications III - Water Supplies	4
In this small group seminar style course students will take a detailed look at water supplies. Students will present an oral or written report/presentation on their conclusions. Topics and conclusions may be addressed individually or by students in groups.	
FPET 208 Practical Applications IV - Risk Management	3
In this small group seminar style course students will explore general topics of risk management. Typical topics might include cost/benefit analysis, approaches to risk, cost and diminishing returns, the role of actuaries, etc. Students will participate in determining the topic(s) to be explored and will present an oral or written report/presentation on their conclusions. Topics and conclusions may be addressed individually or by students in groups.	

CREDITS

FPET 210 Notification Integration 1
Fire suppression, fire resistance (compartmentalization), and fire detection and notification is all important in an overall fire protection strategy. This course will focus on the integration of those systems and how they work together to provide a full strategy of property protection and life safety.

FPET 211 Applied Chemistry and Physics 2
This course is an introduction to fundamentals of chemistry and physics as they apply to the fire protection industry.

FPET 212 Sprinkler Equipment and Systems 3
Students explore in detail the actual equipment and systems used in basic fire protection: wet and dry sprinkler risers and systems; fire pumps; basic alarms utilizing smoke and heat detectors for initiation; and horns and strobes for notification.

FPET 214 Special Systems and Equipment 3
This course investigate the more specialized actual systems and equipment applications found in water-based fire control and suppression such as pre-action and deluge systems, special application sprinklers, and the various types of standpipes.

FPET 216 Special Hazards Systems 4
This course covers other suppression systems and strategies that are neither sprinklers nor water-based.

FPET 217 Notification Appliance and Monitoring Applications 2
This course explores the equipment and methodologies used to notify and evacuate when danger is present.

FPET 218 Detection Systems 3
This course explores the equipment and methodologies used to detect and determine that a danger exists.

FPET 291 Practical Applications 1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FPET 292 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FPET 293 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

FPET 294 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FPET 296 Work-based Learning Experience 1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

FPET 297 Work-based Learning Seminar 1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

FPET 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

FIRE SERVICE

FIRES 101 Orientation to Fire Service 2
This course is an introduction to the history, evolution, organization, and traditions of the fire service.

FIRES 102 Firefighter Safety 4
This course provides a foundation of knowledge regarding the significant risks associated with the fire service and a look at the common causes of injuries and death faced by today's firefighter.

FIRES 103 Fire Service Applications I 5
Students apply the theory presented in lecture/lab and demonstrate performance standards.

FIRES 104 Physical Fitness I 1
Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student.

FIRES 105 Introduction to Fire Science 3
This course introduces students to the science of fire: the exothermic oxidation of a combustible substance. Additional topics include fire behavior and suppression methods and how ventilation affects the growth of fire.

CREDITS

FIRES 106 Fire Hose and Appliances 3
This course introduces students to the care, maintenance, and use of fire hose, hose tools, and associated appliances. Students also learn to identify key components of municipal and rural water supply systems.

FIRES 107 Fire Service Applications II 5
Students apply the theory presented in lecture/lab and demonstrate performance standards.

FIRES 108 Physical Fitness II 1
Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student.

FIRES 109 Ladders 5
This course covers the various types of portable and mounted ladders used in the fire service. Students learn the uses of ladders on the fire scene, various methods for placement, and maintenance of ladders while suppression operations are in progress.

FIRES 110 Intermediate Fire Service 2
During this course, students learn about the different types of extinguishers available for extinguishment of different classes of fires. The operation of the tools and equipment necessary to perform salvage and overhaul operations successfully on the fire ground is also presented. Additionally, students are exposed to basic fundamentals of fire investigations.

FIRES 111 Fire Service Applications III 4
Students apply the theory presented in lecture/lab and demonstrate performance standards.

FIRES 112 Physical Fitness III 1
Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student.

FIRES 121 Wildland Firefighter 2
This course introduces students to wild land fire behavior, tactics, the 10 standard fire-fighting orders, and the 18 "watch out" situations found in wild-land situations. The course includes elements of S-130 and S-190, and includes an arduous Pack Test and fire shelter deployment which leads to wild-land Red-Card certification.

CREDITS

- FIRES 122 Fire Vehicle Operations 4**
This course provides the skills required by the Washington State Fire Protection Policy Board pertaining to the safe operation of emergency vehicles. The proper operation/maintenance of fire pumps, the roles and responsibilities of the driver/operator, and the theory and principles behind water flow and calculations are included.
- FIRES 123 Fire Service Applications IV 5**
Students apply the theory presented in lecture/lab and demonstrate performance standards.
- FIRES 124 Physical Fitness IV 1**
Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student.
- FIRES 201 Rescue Procedures 3**
Students learn the techniques used to rescue civilians and fire service personnel in various rescue situations: vehicle extrication, trench rescue, confined space rescues, and high-angle rescues.
- FIRES 202 Advanced Fire Service 3**
This course emphasizes the dangers of building construction to the firefighter and ways to prevent injury and death including the use of protective systems, detection systems, and suppression systems and proper understanding of these systems, how they operate, and how to use them correctly.
- FIRES 203 Fire Service Applications V 5**
Students apply the theory presented in lecture/lab and demonstrate performance standards.
- FIRES 204 Physical Fitness V 1**
Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student.
- FIRES 205 Hazardous Materials 3**
This course emphasizes the knowledge required to operate at NFPA 472 entry-level standards for the first responders to hazardous materials incidents. Student also learn operations techniques as described in national standards for responders to hazardous materials incidents.
- FIRES 206 Employment Preparation 2**
Students are introduced to emergency service professionals' career ladder structures. They also learn a variety of job search skills necessary to gain employment in the fire service.

CREDITS

- FIRES 207 Strategy, Tactics, and Incident Management 2**
Students are introduced to the National Fire Protection Association Incident Management System at the intermediate level (NIMS). Fire Ground Tactics and Strategies is also included.
- FIRES 208 Fire Service Applications VI 4**
Students apply the theory presented in lecture/lab and demonstrate performance standards.
- FIRES 209 Healthcare Provider 1**
The course is designed to provide a wide variety of healthcare professionals the ability to recognize several life-threatening emergencies, provide CPR, use an AED, and relieve choking in a safe, timely, and effective manner. The course is intended for certified or noncertified, licensed or non licensed healthcare professionals.
- FIRES 210 Confined Space Rescue 1**
Students are introduced to confined space rescue standards as determined by the National Fire Protection Association (awareness level).
- FIRES 211 Advanced Firefighter 3**
Students are introduced to the minimum requirements established by the National Fire Protection Association for Firefighter II certification. Topics to be presented include IMS, foam ops, and auto extrication.
- FIRES 220 Fire Service Applications VII 4**
Students apply the theory presented in lecture/lab and demonstrate performance standards.
- FIRES 221 Experiential Lab/Drill 4**
During this advanced phase of training, students are assigned to, and drill with, organized emergency services organizations. This may include a variety of organized units such as fire engine companies, hazardous-mat operations companies, crash/slash/fire rescue companies, an advanced life support company, or a confined space rescue company.
- FIRES 225 Emergency Medical Technician (EMT) 8**
This course prepares students to meet the requirements for employment as an EMT-B. It adheres to the U.S. Department of Transportation guidelines and the Washington State Department of Social and Health Services standards.
- FIRES 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

- FIRES 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- FIRES 293 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- FIRES 294 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- FIRES 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.
- FIRES 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- FIRES 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

HEARING INSTRUMENT TECHNOLOGY

- HEAR 110 Introduction to Hearing Professions 5**
This course focuses on the role of professionals dealing with hearing healthcare and the role of the hearing aid fitter/dispenser within the healthcare model. Students investigate the different work settings and delivery models that are available in their desired work community.
- HEAR 111 Safety Practices 4**
This course introduces universal and personal safety hygiene in the hearing clinic as well as state required 4 hours of AIDS/HIV training.

CREDITS

HEAR 112 Acoustics 5
Students learn the basics of sound production and sound amplification as it applies to human hearing and the manipulation of sound to improve hearing.

HEAR 113 Hearing Assessment I 3
Students identify key components of patient centered case history and practice in the classroom setting. Basics of otoscopy and standard pure tone testing are demonstrated and practiced in the classroom setting.

HEAR 120 Anatomy and Physiology 5
Normal anatomy and physiology of the human ear and related structures are discussed as it pertains to hearing.

HEAR 121 Instrumentation 5
This course is designed to introduce the student to the different equipment that is used in the industry and state requirements for maintenance and calibration.

HEAR 122 Hearing Assessment II 3
Continuation of Hearing Assessment I, the student practices obtaining case histories, performs otoscopy and standard pure tone audiometry in the classroom setting. Speech audiometry and special testing are introduced.

HEAR 130 Disorders of the Auditory System 5
Common medical pathologies that affect the ear and hearing are described and discussed with emphasis on otologic conditions that require medical referral by state and federal law.

HEAR 131 Hearing Aids I 5
The history of hearing aids and the development of technology and hearing aid components are discussed. Students learn how different hearing aid technologies can affect patient outcomes. Techniques for making impressions for custom ear molds and hearing aid shells are introduced and practiced in the classroom.

HEAR 132 Audiometric Interpretation I 5
Students practice how to read, record, and explain results of audiometric testing in both professional and lay language. The emphasis is on degree, nature and configuration of hearing thresholds as they appear on the audiogram. The Initial process of patient specific recommendations to solve communication difficulties are introduced in this course.

HEAR 210 Hearing Assessment III 3
A continuation of the concepts introduced in Hearing Assessment II, this course is a comprehensive analysis of the decision making process used to choose appropriate test protocols.

HEAR 211 Aural Rehabilitation I 3
This course introduces the concepts of hearing impairment, hearing handicap, and hearing disability. Individual variables such as co-existing medical conditions, psychological adjustment, cultural values, socio-economic status, and disability are presented.

HEAR 222 Hearing Aids II 5
A continuation of Hearing Aids I, this course focuses on the electro-acoustic testing of hearing aids, basic programming of hearing aids and acoustic modification of coupling systems to obtain desired amplification results.

HEAR 223 Clinical II 3
All testing performed In Clinical I are continued with the addition of speech audiometry, tympanometry, and impressions.

HEAR 230 Hearing Aid Service and Repair 5
This course concentrates on the maintenance of a functioning hearing aid as well as troubleshooting a non-functioning or distorted hearing aid. Minor office repairs are demonstrated and practiced both in the classroom setting and in the clinical setting.

HEAR 231 Aural Rehabilitation II 4
This class focuses on different verification strategies and counseling tools for the hearing aid user. Topics such as current trends, Deaf Culture, cochlear implants, and assistive listening devices are investigated.

HEAR 232 Business Aspects II 4
Current industry trends are identified and discussed in this course. The student has the opportunity to create a business plan or produce a professional resume..

HEAR 233 Clinical III 4
Clinical III is a continuation of Clinical II. All skills are applied in a full service hearing aid clinic with minimal supervision.

HEAR 291 Practical Applications 1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HEAR 292 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HEAR 293 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

HEAR 294 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HEAR 296 Work-based Learning Experience 1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

HEAR 297 Work-based Learning Seminar 1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

HEAR 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

HEATING, VENTILATION, AIR CONDITIONING, REFRIGERATION TECHNICIAN

HVAC 101 HVAC/R Fundamentals 3
This course is an introduction to the HVAC industry. It will introduce the student to HVAC history, environmental heating and cooling, food preservation, industry opportunities, professional organizations, useful publications, available certifications and what is required of an employee.

HVAC 102 Safety 2
OSHA and WISHA procedures and regulations are presented. Students complete the Washington State Industrial First Aid / CPR program. The use of personal protection equipment, and safe work practices.

HVAC 103 HVAC/R Science 2
This course will cover the importance of the properties of matter, laws of conservation of energy, common forms of energy, energy conversion and electrical distribution. Temperature measurement and conversion, thermodynamics, pressures and vacuums.

HVAC 104 HVAC/R Tools and Equipment 4
Students learn the proper use of hand tools, fasteners, electrical, refrigeration and heating test instrument and servicing equipment.

HVAC 105 Refrigerant and Refrigeration Systems Sections A **CREDITS 4**

Students learn refrigeration system components and operation, refrigeration cycle, compressors, condenser, metering devices and evaporators.

HVAC 106 Refrigerant and Refrigeration Systems Sections B **3**

A continuation of the concepts introduced in HVAC 105, students learn refrigerant properties, system piping, accessing sealed systems, refrigerant management, system evacuation and charging.

HVAC 107 HVAC/R Electrical Systems and Components **5**

Students learn basic electricity, power, circuits, electric motors, electrical components, diagrams and controls.

HVAC 108 Soldering and Brazing Applications **3**

Students learn techniques of heat bonding copper tubing and dissimilar materials using soft solder and brazing alloys common to the HVAC industry.

HVAC 109 Basic HVAC/R Math Applications **3**

This course is an introduction to the basic mathematic calculation used in the HVAC/R industry.

HVAC 110 Residential HVAC/R Systems **5**

This course is an introduction to unitary systems, split systems, and the arrangement, placement, and matching of equipment. Students learn to troubleshoot residential cooling and heating equipment.

HVAC 111 Light Commercial HVAC Systems **5**

A continuation of the concepts introduced in HVAC 110, students learn about unitary and split air conditioning and heating equipment used in light commercial applications. Oil heating equipment is also presented.

HVAC 112 Heat Pump Systems **4**

A continuation of the concepts introduced in HVAC 110 and HVAC 111. This course is an introduction electric heating equipment, heat pump components, applications and troubleshooting.

HVAC 201 HVAC/R System Design, Sizing, and Layout **4**

Students are introduced to basic building construction, fans, airflow, duct design, installation, zone controls, test and balancing air systems, psychrometrics, indoor air quality, filters, humidifiers, and residential load calculations.

HVAC 202 Welding Processes (SMAW/GMAW) **CREDITS 2**

This course is an introduction to basic oxy-acetylene welding including flat and vertical bead on plate. A general overview of terminology and general safety is also include.

HVAC 203 Hand Held Torch **2**

Basic oxyacetylene cutting and burning is presented.

HVAC 204 SMAW (ARC) Applications **2**

Basic arc welding in the horizontal, vertical, and overhead positions is presented.

HVAC 205 GMAW (MIG) Applications **2**

Basic steel and aluminum MIG welding in the horizontal, vertical and overhead positions are presented.

HVAC 206 Basic Metalworking **2**

Students learn to identify the components, equipment, and operation for sheet metal layout and fabrication.

HVAC 207 Basic Layout and Patterns **2**

A continuation of the concepts introduced in HVAC 213, students fabricate patterns and join them in a line of fittings.

HVAC 208 Fabrication Practices **2**

Students learn the procedures used in the installation of a complete residential central heating, ventilation, and air conditioners.

HVAC 209 Air Balance and Duct Sizing **2**

This course is an introduction to the techniques and procedures used in the residential construction industry to determine proper sizing of HVAC equipment and ducts to meet the requirements for a high-quality, comfortable climate in terms of heating, cooling, humidifying, dehumidifying, ventilation and air cleaning or filtering.

HVAC 210 Drafting/Blueprint Reading **4**

Students learn basics of preparing plans and orthographic and isometric drawings used to create building blueprints. The identification and application of plumbing, electrical, air conditioning, and refrigeration symbols found on mechanical drawings is emphasized.

HVAC 211 Commercial Environmental Systems **5**

This course provide the students with the knowledge commercial air conditioning systems, air handlers, accessories, package units, and controls

HVAC 212 Chilled Water Systems **2**

This course is an introduction to types of chilled water units, purge recovery, compressor arrangement, chiller economizers, oil return systems, and absorption chiller operation.

HVAC 213 Hydronic Heating Systems **CREDITS 2**

Students learn the uses of common terminal units, types of piping, configuration of multiple systems, motorized controls valves, radiant heating, mixing valves, and the circulators used.

HVAC 214 Cooling Towers Basics **1**

Students learn the basics types of cooling towers and cooling tower operation and maintenance.

HVAC 215 Introduction to Thermal Storage **2**

Students are introduced to the theory of thermal storage including mode of operation.

HVAC 216 EPA Section 608 Exam **1**

This course is a precursor to taking the EPA Section 608 exam. Employee must be certified by the EPA to handle refrigerant under penalty of law. Three types of exams are available: Type I, Type II, and Type III. All three types require that a core exam also be passed. The minimum requirement for HVAC/R technicians is a Type II.

HVAC 217 Commercial Refrigeration **3**

Students learn to identify high temperature, medium temperature and low temperature refrigeration systems, food preservation, various type of systems used, and basic principles of operation.

HVAC 218 Installation, Maintenance, and Troubleshooting **2**

This course is an introduction to installation standards, equipment placement, piping procedures, determining the correct charge, planned maintenance, and troubleshooting procedures.

HVAC 219 AHRI Industry Competency Exam #1 (ICE) **2**

This course is a precursor to taking industry recognized national AHRI Industry Competency Exam (ICE Exam). The three test areas include: Residential Heating and AC, Light Commercial Heating and AC, and Commercial Refrigeration. Completion of one exam of the three exams is required for Support Technician credential and AT Degree.

HVAC 220 AHRI Industry Competency Exam #2 (ICE) **2**

This course is a precursor to taking industry recognized national AHRI Industry Competency Exam (ICE Exam). The three test areas include: Residential Heating and AC, Light Commercial Heating and AC, and Commercial Refrigeration. Completion of an additional exam is required for AT Degree.

HVAC 221 HVAC/R Industry Math **5**

This course is an introduction to the math calculations common to the industry, including algebraic formulas; calculation of angles, areas, and volumes of various geometric shapes; and system load calculations.

CREDITS

HVAC 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HVAC 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HVAC 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HVAC 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HVAC 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

HVAC 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

HVAC 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

HTI: HOME TECHNOLOGY INTEGRATION**HTI 101 Introduction to Home Technology 2**

This course is an introduction to the field of home technology integration and developing an education plan for the HTI+ industry certification.

HTI 102 Security and Fire Alarm Systems 2

Practical applications of security and fire alarm systems including system planning, sensor placement and panel programming are emphasized.

CREDITS

HTI 103 Surveillance/ CCTV 2

Practical applications of video surveillance systems and closed circuit TV systems including cameras, lenses, lighting and recording methods are emphasized.

HTI 104 Access Control Systems 2

This course is an introduction to the various methods of access control devices including access cards, card readers, controllers, key-pads, and biometric sensors.

HTI 105 Electronic Fundamentals 3

This course is an introduction to basic electronics concepts including direct current, alternating current, and related mathematics.

HTI 106 Electrical Wiring and Devices 2

Practical applications of electrical wiring principles as it applies to high and low voltage systems along with the study of electrical codes and standards are emphasized.

HTI 107 Structured Cabling 2

This course is an introduction to cabling types, installation planning and fabrication methods.

HTI 108 Installation Practices 2

Practical applications of cable construction and usage in computer networks and audio/Video systems are emphasized.

HTI 109 Low Voltage Services 3

This course is an introduction to the protocols and topologies of low voltage systems including PTNS, ISDN, DSL, and Telco Terminology.

HTI 110 Introduction to Wireless Networking 2

Practical applications in the configuration, set-up and administration of Wireless networks in both infrastructure and ad-hoc modes are emphasized.

HTI 111 Wireless LAN/WLAN Standards 2

This course is an introduction to wireless local area network issues including signal reception and security implementation.

HTI 112 Introduction to Networks 2

This course is an introduction to computer network topologies, network operating Systems, IP addressing and the OSI model.

HTI 113 OSI Model 3

This course is an advanced study of the Open System Interconnection Reference Model which is the standard computer networking framework.

HTI 114 MS-Windows/ Network Operating Systems (NOSs) 3

This course is an advanced study of network operating systems, file sharing versus security issues, data back-up, and disaster recover methods.

CREDITS

HTI 115 Remote Connectivity 3

This course is an introduction to connecting, configuring and troubleshooting PCs over networks, internet or modems.

HTI 116 Troubleshooting Networks 2

This course is an advanced study of processes and procedures used in troubleshooting Computer networks.

HTI 117 Residential Audio/ Visual Systems 2

Practical applications in the design, set-up and troubleshooting of home entertainment systems are emphasized.

HTI 118 Automating/ Integrating Residential Systems 2

Practical applications in "smart home" technologies including entry, lighting, and security and heating controls as well as remote connectivity.

HTI 119 Advanced HSI Applications 3

Practical applications in integrating all of the home technologies courses in a complete system design are emphasized.

HTI 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HTI 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HTI 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

HTI 296 Work-based Learning Experience 1-18

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HTI 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

CREDITS

HTI 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

INFORMATION TECHNOLOGIES SPECIALIST**INFO 101 Computer Applications Essentials 4**

This course is an introduction to the effective use of the computer at home or on the job including such topics as an introduction to application software for document processing, presentation graphics, electronic spreadsheet, and database management software using Microsoft Office.

INFO 102 Fundamentals of Information Technology 14

This course provides an introduction of Information Systems principles to help students understand the relationship of advanced courses to the curriculum as a whole and to present the changing role of the information systems professional.

INFO 103 Internet Applications 5

This course is a combination of three popular internet applications: e-mail, XHTML, and web authoring. Topics also include web search skills, Mash up, social networking, and online multimedia.

INFO 104 A+ Essentials 4

In this course, students acquire the essential skills and information needed to install, upgrade, repair, configure, troubleshoot, optimize, and perform preventative maintenance of basic personal computer hardware and operating systems. This course also prepares students for current A+ Essentials certification.

INFO 105 A+ Practical 4

Students learn to support PC hardware in a business setting, including installation, troubleshooting, component replacement, networking, and security. They also learn to manage the Windows operating system and are prepared for current A+ Essentials certification.

INFO 106 Electronics Basics 5

This course introduces the student to the fundamentals of electricity and electronics required to understand computer and network operations. Topics include AC theory, DC theory, electronic circuits, and other related fundamentals.

INFO 107 Structured Cabling 3

This course introduces students to standardized cabling practices and skills needed to install standards-compliant, scalable networks.

CREDITS

INFO 108 Project Management 5

This course is designed to introduce students to project management concepts and terminology. Students gain skills within a hands-on environment using project management software.

INFO 109 Employment Preparation 5

Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

INFO 110 Emerging Technologies 5

Discover and explore emerging technologies used in today's computing environments. Students learn about these technologies and how these trends will impact computing and society.

INFO 111 Practical Applications 5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

INFO 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

INFO 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

INFO 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

INFO 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

INFO 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

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INFO 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

INFO 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

LAND SURVEY**LAND 101 Computers As Engineering Tools 3**

This course is an introduction to computers, their peripherals, operating systems, file structures, and various commercial applications.

LAND 102 Applied Surveying Math 5

Students are introduced to the fundamentals of math as they relate to the surveying industry: applied algebra, trigonometry, and geometry.

LAND 110 Basic Surveying - CAD 3

This course is an introduction to basic surveying methods with emphasis on the theory of measurements, methods of collecting and recording data, and using data collectors to interface with CAD software.

LAND 111 First Aid/CPR 1

This course provides fundamental first aid and basic CPR skills.

LAND 112 Flagger Certification 1

The course provides the basic knowledge, information, and awareness to perform safely in the field. Students receive a flagger certification card upon successful completion of the course.

LAND 113 Introduction to Global Positioning Systems 3

This course is an introduction to the technology of the Global Positioning System (GPS). Topics include the operational concepts of planning, reconnaissance, and data collection.

LAND 120 Position Tolerance and Error 3

Students are introduced to the amount of uncertainty allowed for position on a survey.

LAND 121 Schematics 4

This course is an introduction to the interpretation of diagrams, schematics, and drawings common to the surveying industry.

LAND 130 Level Instruments 6

This course is an introduction to the basic fundamentals of land surveying and the use of control networks. The practice includes the use of levels, chains, rods, and written documentation.

CREDITS

- LAND 131 Total Station Instruments 6**
This course is an introduction to the total station instrumentation and its application in setting out coordinates. Practical applications include instrument features, set-up and take-down, changing reference points, and measuring a variety of scenes.
- LAND 135 Surveying Legal Guidelines 3**
Students are introduced to the RCW's and WAC's that govern the land surveying profession, the Survey Recoding Act, and the laws associated with the standards of surveying.
- LAND 140 Intermediate Field Surveying 6**
This course is a study of the methods and instrumentation used in the surveying profession. The theory and application include centerline and cross-sectional design surveys and topographic and ALTA surveys.
- LAND 205 Advanced Surveying Math 5**
Students perform advanced mathematical applications as they relate to surveying.
- LAND 210 Utility CAD Applications 5**
This course is an introduction to the methods of applying CAD operations to layout utility systems.
- LAND 211 Subdivision Planning and Design 5**
This course is an introduction to the methods used to create lots of esthetic value, satisfy minimum lot requirements, and calculate acreage. The integration of site features to optimum development and the application of civil engineering principles to land development is also presented.
- LAND 212 Roadway Design 5**
Students complete projects on roadways with special attention to horizontal and vertical alignment, mathematical closures, latitudes and departures, earthwork cuts and fills, and land planning regulations.
- LAND 220 Field Traverse – CAD 5**
This course provides further development in the use of surveying instruments and applying balancing and adjustments to closed and looped traverses.
- LAND 221 Global Positioning Systems (GPS) 4**
Practical applications include the use of state-of-the-art satellite communications systems. Students successfully completing this course are eligible to sit for the elective continuing education GPS Surveyor certification examination.
- LAND 222 Plan Review 6**
Students learn to reading, review, and interpret survey plans and related drawings.

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- LAND 225 Construction Surveying and Layout 5**
This course is an introduction to the methods of translating engineering and architectural plans into field surveys for construction work and post-construction mapping. Topics include engineering measurement tolerances, vertical and horizontal differential tolerances, terrestrial photography and control, deformation studies and analysis, and safety and hazardous waste environment.
- LAND 230 Independent Projects 4**
Students complete assigned projects from local surveys assuming responsibility for the project from initiation through random traverse, closure, staking, and record of survey.
- LAND 231 Survey Records – CAD 5**
This course introduces the basic requirements to generate a drawing to meet the standards of the Surveying Recording Act.
- LAND 240 Legal Descriptions 5**
This course is an introduction to the principles of writing property legal descriptions for deeds, easements, and rights-of-way. Emphasis is placed on the structure and order of the elements in the description and on avoiding the common mistakes of language, construction, and terminology.
- LAND 241 LSAW Seminar 3**
Students participate in an annual Washington State Land Surveyor's conference.
- LAND 242 Independent Projects 4**
Students complete assigned projects from local surveys assuming responsibility for the project from initiation through random traverse, closure, staking, and record of survey.
- LAND 291 Practical Applications 1-18**
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- LAND 292 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- LAND 293 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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- LAND 294 Independent Projects 1-5**
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.
- LAND 296 Work-based Learning Experience 1-18**
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.
- LAND 297 Work-based Learning Seminar 1-2**
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.
- LAND 298 Work-based Learning – No Seminar 1-18**
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

LEGAL OFFICE ASSISTANT

- LEGAL 101 Legal Office Procedures I 5**
This course is an introduction to legal concepts and the various fields of law, including document preparation commonly used in these fields.
- LEGAL 102 MS Outlook 2**
Students learn to manage calendars and use basic and advanced features of email, scheduling, and other functions.
- LEGAL 103 Records Management 4**
Students learn to apply alphabetic indexing rules in a simulated business environment.
- LEGAL 104 MS Word I 3**
This course is an introduction to basic word processing skills using MS Word.
- LEGAL 105 MS Word II 3**
Students learn more advanced word processing skills, including document merge, table creation, and column formatting.
- LEGAL 106 Business Documentation I 5**
Students learn to apply grammar fundamentals to create legal and court documents, memos, business letters, reports, and email.
- LEGAL 107 Business Presentations 2**
Business meeting structure, conduct, and protocols, including meeting facilitator's responsibilities and oral presentations in a meeting format are the focus.

CREDITS

LEGAL 108 Legal Terminology	5
This course is a basis for all legal sections by understanding and using legal vocabulary, analyzing court structures, and learning the types of law classifications.	
LEGAL 109 Legal Research	2
This course is an introduction to basic legal research skills with emphasis on the use of technology-based sources. Students learn research techniques and sources needed in legal environments.	
LEGAL 110 Business Grammar I	2
This course is an introduction to basic grammar including parts of speech and writing grammatically correct sentences.	
LEGAL 201 Beginning Accounting	5
Students learn to use commercial software packages such as Quickbooks to maintain books and business records.	
LEGAL 202 Ethics	2
Students learn about ethical practices, procedures, and fundamentals using the Canons of Responsibility from the National Association of Legal Assistant's Code of Ethics and National Association of Legal Secretary's Code of Ethics.	
LEGAL 203 Legal Billing Software	1
This course is an introduction to specialized legal software where students learn to input clients' billable hours.	
LEGAL 204 MS Word III	3
This is an advanced course on MS Word, including advanced formatting, page layout operations, and graphic importation.	
LEGAL 205 Keyboarding II	5
Students learn to document Initial typewriting and computer keypad data entry skills including document creation, editing and correction on a PC keyboard. Improvement of speed in typewriting and keypad data entry skills.	
LEGAL 206 Legal Office Projects	4
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.	
LEGAL 207 MS PowerPoint for Legal Assistants	4
Students learn to create, edit, and modify slide presentations and customize presentations using tables, graphics, objects, colors, and special effects.	
LEGAL 208 MS Excel I	3
Students learn to create, edit, maintain, and print spreadsheets and data sheets. The use of macros is also introduced.	

CREDITS

LEGAL 209 Domestic Relations/Family Law	2
Students learn to prepare progressive documents, follow timelines and learn the fundamentals of guardianship, adoptions, and marriage dissolution matters.	
LEGAL 210 Civil Litigation	2
Students learn to assemble and work from case information, commence and serve a civil lawsuit based on court rules and statutes, and prepare documents in case progression.	
LEGAL 211 Business Grammar II	2
Students learn more advanced concepts of writing business correspondence including the importance of spelling, punctuation, and editing skills.	
LEGAL 212 Estate Planning	2
Utilizing case information and basic statute requirements, students learn to prepare various types of wills and estate planning documents.	
LEGAL 213 Real Estate and Bankruptcy	2
Utilizing case information and basic statute requirements, students learn to prepare various types of real estate and bankruptcy documents.	
LEGAL 220 ALS Certification Preparation I	4
This course is a preparation for the ALS, the basic certification exam for legal professionals in written communications, office procedures, and legal knowledge study areas.	
LEGAL 221 ALS Certification Preparation II	4
This course is a preparation for the ALS, the basic certification exam for legal professionals in written communications, office procedures, and legal knowledge study areas.	
LEGAL 222 ALS Certification Exam	1
This course is a preparation for the ALS, the basic certification exam for legal professionals in written communications, office procedures, and legal knowledge study areas.	
LEGAL 281 Independent Project I	4
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.	
LEGAL 282 Independent Project II	4
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.	
LEGAL 283 Independent Project III	4
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.	

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LEGAL 284 Independent Project IV	3
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.	
LEGAL 291 Work-based Learning Experience I	4
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
LEGAL 292 Work-based Learning Experience II	4
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
LEGAL 293 Work-based Learning Experience III	4
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
LEGAL 294 Work-based Learning Experience IV	3
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
LEGAL 297 Work-based Learning Seminar	1
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
LEGAL 298 Work-based Learning - No Seminar 3-4	3-4
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	

MACHINIST

	CREDITS
MACH 111 Machine Shop Mathematics I	2
This self paced course is an introduction to math concepts to solve problems common to the machining/manufacturing industry.	
MACH 112 Industrial Safety I	3
This course is an introduction to the occupational safety practices common to the machining/manufacturing industry. Emphasis is placed on the application of OSHA and WISHA standards within the lab setting.	
MACH 113 Measurement Applications	3
Students learn to use precision measuring tools such as micrometers, height gages, calipers, gage blocks, and indicators.	
MACH 114 Lathe Operations I	4
Students learn to set up and run conventional lathes for facing and turning operations and to perform basic machining skills.	
MACH 115 Machine Shop Mathematics II	5
A continuation of the concepts introduced in MACH 111, students learn elementary , geometry, and trigonometry as they apply to the machine shop.	
MACH 121 Lathe Operations II	4
A continuation of the concepts introduced in MACH 114, students learn more advanced turning skills using taper attachment, single point threading, knurling, boring head, band-saw blade welding and drill grinding.	
MACH 122 Grinding I	2
Students learn to set up and use a surface grinder.	
MACH 123 Machining I	2
This course is an introduction to basic machining tools and processes including mechanical forces and metal removal.	
MACH 124 Milling I	2
Students learn conventional milling machine techniques	
MACH 125 Statistical Process Control	3
Introduction to the theory and applications of statistical process control as used in a machining/manufacturing/ production environment.	
MACH 126 Blueprint Reading I	2
Introduction to blueprint reading including part specifications, views, ANSI, and SI metric drafting symbols.	
MACH 131 Industrial Safety II	2
Students learn common occupational safety practices within the lab setting.	
MACH 132 Geometric Dimensioning and Tolerancing	3
This course is an introduction to the symbolic language used on engineering drawings.	

	CREDITS
MACH 133 Milling II	3
Students are introduced to basic metallurgy, including physical and mechanical properties of metal..	
MACH 134 Advanced Machining	4
Students learn complex lathe operations.	
MACH 135 Advanced Machining II	4
A continuation of the concepts introduced in MACH 134, students learn advanced grinding techniques. .	
MACH 136 First Aid/CPR	1
Students receive training in first aid and CPR.	
MACH 142 Advanced Machine Shop Applications	8
Students plan and produce an advanced project of their own design with the permission of the instructor. This course may only be used as a substitution for WBAS 101for students with documented health issues.	
MACH 211 Machining III	1
This course is an introduction to cutter terminology and applications.	
MACH 212 Manufacturing Support	1
This course is an introduction to lean manufacturing, ISO standards, and measuring systems analysis.	
MACH 213 Advanced Machining III	100 5
Student learns to machine and assemble complex components .	
MACH 216 Blueprint Reading II	5
Students learn advanced dimensioning, tolerancing, practices, and multiple views	
MACH 217 Blueprint Reading III	2
Students learn to interpret complex engineering drawings.	
MACH 221 CNC Lathe I	2
Students learn to set up and use a computerized numerical control (CNC) lathe.	
MACH 222 CNC Lathe II	5
Students learn advanced practices using the CNC lathe.	
MACH 223 Machining IV	2
Students expand knowledge of advanced manual machining concepts	
MACH 224 MasterCam/Solid Works	5
Students learn CAD/CAM, and verification software.	
MACH 231 CNC Mill I	2
Students learn to write CNC Milling programs.	

	CREDITS
MACH 232 Advanced CNC Machining I	5
This course provides the student with advanced practice associated with CNC machine programs.	
MACH 233 Advanced CNC Machining II	5
A continuation of the concepts introduced in MACH 232, students work on advanced CNC machining projects.	
MACH 291 Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
MACH 292 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
MACH 293 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
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MACH 296 Work-based Learning Experience	1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
MACH 297 Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
MACH 298 Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	

CREDITS

MANUFACTURING: CNC MACHINING & ENGINEERING**MFCNC 101 Introduction to Machine Manufacturing Processes 3**

This course introduces students to the machine manufacturing environment. Students gain familiarity with the various equipment found within a machining environment, the materials used in machine manufacturing processes, maintenance of the work area, and how to conduct themselves within the shop—with an emphasis on safety and professional conduct. Additionally, students gain an understanding of precision and how it is applied to modern machine manufacturing.

MFCNC 102 Machine Design Fundamentals 3

The primary objective of this course is to understand how various principles of physics are applied to provide design solutions. The emphasis in this course is on machine design: the design and creation of devices that consist of interrelated components used to modify force and/or motion.

MFCNC 103 Mechanical Design Blueprints 4

Students receive training in part specifications, views, ANSI and SI Metric drafting symbols. All instruction is at an introductory level.

MFCNC 104 Geometrics and GDT 3

When designing mechanical components, standardized tolerances are often used. Geometric dimensioning and tolerancing is a symbolic language used on engineering drawings and computer generated three-dimensional solid models for explicitly describing nominal geometry and its allowable variation. This unit introduces students to these design and drawing standards, and provides practical application via precision measurement techniques.

MFCNC 105 Secondary Operations, Benchwork 2

Within a machining environment, student are introduced to the non-machining functions necessary within manufacturing process. This includes following work orders and conducting pre-machining and after-machining operations, often done with hand tools. Students learn the steps to prepare materials for machining and to finish the products after machining.

MFCNC 106 Precision Measurement and Layout 3

Students learn how to use precision measuring tools and devices, such as micrometers, Vernier height gage and calipers, depth micrometers, and hole gages. They also learn how to perform project layout utilizing specific purpose precision tools.

CREDITS

MFCNC 107 Fundamental Manual Machining 5

This course provides fundamental knowledge and skills to operate manual machining machines. Offered at the introductory level, students acquire basic familiarity with machining processes of drilling, lathing, milling, and grinding.

MFCNC 108 Introduction to CNC Processing Technology 2

This course introduces the student to computer numerical controlled manufacturing techniques and applications.

MFCNC 109 CNC Systems and Controls 3

Students are introduced to the construction and workings of a variety of CNC machines, their systems, and their controls.

MFCNC 110 CNC Programming 4

This course introduces the student to CNC programming techniques, to include CAD/CAM and parametric programming, and application of these programs to manufacturing processes.

MFCNC 111 CNC Troubleshooting 3

Students learn how to troubleshoot CNC systems, to include mechanical or program fault identification and isolation.

MFCNC 201 CNC Lathe I 4

Students receive training in the set-up and fundamental use of a CNC (Computerized Numerical Control) lathe.

MFCNC 202 CNC Lathe II 4

Students continue training in the use of a CNC lathe.

MFCNC 203 CNC Milling I 5

Students receive training in the set-up and fundamental use of CNC controlled milling machines.

MFCNC 204 CNC Milling II 5

Students continue training in more complex applications of CNC milling operations.

MFCNC 205 Computer-Aided Manufacturing 4

Students are introduced to the fundamental skills involved in using CAD and CNC programs in the application of CAM (computerized aided manufacturing) programs to machining operations.

MFCNC 206 Introduction to Computer-Aided Drafting (CAD) 2

This course introduces computer-aided drafting (CAD) including the hardware that makes up a CAD workstation and how to use AutoCAD to set up drawings and construct lines, circles, arcs, various shapes, geometric constructions, and text. Topics include: the AutoCAD interface, templates, editing, layers, plotting, view tools, object snaps, multi-view drawings, text styles, tables, and CAD drafting standards.

CREDITS

MFCNC 207 Advanced Projects I 5

Students participate in an independent special manufacturing, machining, or engineering project, the project activity and requirements being selected by both the student and instructor on an aspect relevant to the profession.

MFCNC 208 Advanced Projects II 5

Students participate in an independent special manufacturing, machining, or engineering project, the project activity and requirements being selected by both the student and instructor on an aspect relevant to the profession.

MFCNC 209 Advanced Manufacturing Processes 3

Students receive training in processes used in manufacturing to transform materials into the final product. Subject areas include: non-traditional machining, surface finishes, metallurgy/heat treating principles, assembly of components, flexible and reconfigurable manufacturing systems.

MFCNC 210 Emerging Technologies 4

Students learn basic information literacy techniques, how to access the library's web site, look up materials in the library's online catalog, and complete simple searches using web search tools and some of the library's online databases. Using these tools, they explore current or emerging engineering or manufacturing techniques or technologies. Each student will produce a technical paper demonstrating knowledge of these new and emerging technologies.

MFCNC 220 CAD I 4

A continuation of the concepts introduced in MFCNC 206, this course introduces dimensioning, parametric drafting and hatching techniques. The topics covered include using the geometry calculator and selection filters; drawing and editing poly-lines, multi-lines, and splines; inserting fields and tables; working with blocks, using externally referenced drawings; and creating sheet sets.

MFCNC 221 CAD II 5

Students learn 3D construction, mesh and solid modeling, and advanced viewing capabilities of AutoCAD. Topics covered include user coordinate system (UCS), point, spherical and cylindrical coordinate entry, 3D viewing and display techniques, Show Motion, 2D regions, 3D primitives, and surfaces. Students will work with multiple viewports for 3D constructions and create 2D layouts.

CREDITS

MFCNC 222 CAD III	5
This advanced course begins with visual styles, rendering, materials, lighting, cameras, and flybys; students then learn the techniques for customizing the AutoCAD environment. Topics include: creating and modifying ribbon panels, shortcut keys, menus, dialog boxes, creating macros, managing symbol libraries, and effective menu modification. The course also introduces AutoLISP, Dialog Control Language [DCL], and Visual Basic for Applications (VBA).	
MFCNC 223 Electronic Fundamentals	4
Students receive training in the subjects that form the heart of basic electricity and electronics. From batteries, magnetism and resistors, through Ohm's Law, series and parallel circuits to networks, measurements, electronic devices, and alternating current theory.	
MFCNC 224 Electronic Applications	3
A continuation of the concepts introduced in MFCNC 223, students apply the fundamentals in systems used within a manufacturing process.	
MFCNC 225 Microcontrollers	3
Students learn and demonstrate their knowledge of microcontrollers.	
MFCNC 226 Hydraulics and Fluid Power	2
This course introduces the student to hydraulic system fundamentals and to the use of hydraulics/pneumatics in manufacturing systems. Students learn hydraulic/pneumatic theory, component design for hydraulic valves and actuators, and system applications.	
MFCNC 227 Sensors/Scanner Technology	3
This course provides an introduction into industrial instrumentation as it pertains to manufacturing environments. Students acquire fundamentals of sensors/scanners and their applications within production control processes. Additionally, students learn how to design filter and conversion circuits.	
MFCNC 228 Programmable Controllers	4
Students learn operational fundamentals/theory and applications associated with programmable controllers, particularly as they pertain to manufacturing processes.	
MFCNC 229 Plastic Mold Manufacturing	2
Students are introduced to processes and procedures used in the manufacture of thermoplastic molds, to include casting, punching, and injection molding.	
MFCNC 230 Introduction to Mechatronics	3
This course provides an introduction to the concept and practice of mechatronics—particularly with regard to manufacturing. It includes the interface of computers with	

physical devices (sensors, actuators), data acquisition, real time programming and real time control, human-machine interfaces, and design principles of mechatronics in manufacturing systems.

MFCNC 231 Basic Robotics	2
Students are introduced to robotic systems used in manufacturing. Here they apply their knowledge of fluid power systems and programmable controllers in manufacturing and production situations. In this basic course, they learn to determine end-efforts and set up robotic systems.	
MFCNC 291 Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
MFCNC 292 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
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MFCNC 296 Work-based Learning Experience	1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
MFCNC 297 Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
MFCNC 298 Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	

CREDITS

MARKETING AND BUSINESS MANAGEMENT

MARK 101 Marketing Principles	5
This course introduces the student to the basic components of marketing goods and services with a focus on the following subject matter: basic consumer needs, creating and implementing a marketing strategy and the study of general marketing principles.	
MARK 102 Customer Service	5
This course examines the techniques and processes to create a company wide customer service environment. Students will sharpen their skills in the areas of critical thinking, acquiring and retaining customers, and developing a service-oriented mindset, ensuring customer satisfaction, diffusing unsatisfactory situations and excelling in communication.	
MARK 103 Written Business Communication	3
This class focuses on expressing plans, ideas and other business-based communication in written form. Students will demonstrate the ability to communicate through writing to clients, customers and co-workers at all levels.	
MARK 104 Business Negotiations and Collaboration	3
This course presents a perspective of how to respond and resolve conflict through collaborative negotiations with positive results. Included are a variety of methods to establish rapport, trust and reliability, manage conflict in the negotiation process, and how to handle difficult power tactics.	
MARK 105 Information Research and Acquisition	1
The ability to successfully research and acquire relevant information is very important in the competitive world of marketing. This class teaches how to utilize resources and sources to obtain and utilize that information.	
MARK 106 Business Concepts	5
A wide array of business concepts are explored in this class including entrepreneurship, organizational systems, finance, marketing, management and international business.	
MARK 107 Cross Cultural Communications	5
Students study the concepts of culture and its impact on organizations as they conduct business globally. Topics explored include: intercultural and cross-gender communication, political and economic philosophy, social structure, religion, language and education.	
MARK 108 International Trade Practices	5
This course is an introduction to the key business concepts that individuals and businesses must understand to enhance results in international trade.	

CREDITS

MARK 109 Economics: A Marketing Perspective 5

A study of economics, economic environments, and analysis of the economic factors involving the essentials of demand and supply; competition and monopoly; labor; public policy towards business; and the distribution of income.

MARK 110 Principles of Management and Supervision 5

Basic principles of management and supervision are studied and practiced. Students learn leadership skills related to working styles, coaching skills and working effectively with coworkers and subordinates.

MARK 111 Cyber Marketing/E-Commerce 5

This class researches business organizations that market and sell on the Internet and assesses the impact of e-commerce on business and consumers.

MARK 112 Business Law 5

This class is designed as an introduction to the legal system and its impact and functions within the business world. Students will study legal reasoning, the process of resolving disputes and contractual agreements in the business community.

MARK 113 Accounting Principles 5

This course is an introduction to financial accounting principles and management accounting.

MARK 121 Branding/Corporate Identity 2

Students study the importance and impact of branding techniques and the creation of corporate identity in marketing products and services.

MARK 122 Advertising: Creation and Planning 4

This course explores planning aspects of promotional efforts and creation of effective advertising campaigns including student development of flyers, brochures, newsletters, direct mail packages and media releases

MARK 123 Business Software Applications 3

Students learn to expedite projects and planning efforts utilizing business software applications. This will help them in efficiency, time management and organization.

MARK 124 Sales Strategies and Consumer Psychology 5

This course examines the psychology of consumer behavior and use of sales strategies created to enhance consumer behavior in purchasing.

MARK 125 Business and Marketing Presentation Skills 3

Students develop the skills to create and deliver presentations that influence colleagues, clients and other audiences.

CREDITS

MARK 126 Planning and Leadership 5

This course is a general course for developing planning and personnel management skills required for successful sales, marketing, and managerial professionals.

MARK 127 Public Relations 3

This course examines how a firm gains audience exposure through the strategic placement of topics of public interest and news items that do not require direct payment. Students explore the role of public relations in marketing, how it differs from advertising, and the steps to develop a public relations campaign.

MARK 128 Marketing Research and Forecasting 3

This is an introductory course to the purposes, methods, and techniques of marketing research and the principles on which they are based.

MARK 129 Advanced Marketing Projects 5

Students complete independent marketing projects, such as business or marketing plan development, advertising project development, international marketing project development, advanced project risk analysis assessment, or international marketing research. Requires instructor approval prior to registration.

MARK 201 Introduction To Leadership Skills and Ethics 3

This course is an introduction to the various skills necessary to become an effective leader whether that role is as a member of a group, team leader, department head, supervisor or manager. This class also explores moral principle, decision making, community standards, corporate, community and personal responsibility.

MARK 202 Introduction To Strategic Marketing 4

This course delves deeper into marketing strategies enabling students to identify and minimize the effect of competitive forces. Organizational strategic planning efforts to communicate products and services are explored.

MARK 203 Introduction To Business Accounting/Finance 5

This course is designed for non-financial managers and introduces the accounting process, key financial documents, ratios and profit analysis.

MARK 204 Introduction To Presentation and Facilitation Skills 3

In this course, students enhance personal presentation skills in a variety of settings, from large groups to small business meetings. Meeting facilitation tactics are introduced and practiced as a part of this course.

CREDITS

MARK 205 Advanced Business Projects 5

Students complete independent marketing projects, such as business or marketing plan development, advertising project development, international marketing project development, advanced project risk analysis assessment, or international marketing research. Requires instructor approval prior to registration.

MARK 206 Teaming for Success 3

Students learn to apply successful leadership models, analyze personal leadership styles, understand and synergize the dynamics of a team and appropriately empower people to make correct team and organizational decisions.

MARK 207 Introduction To Managing Change 3

This course presents information on how leaders seek out, initiate, support, and manage needed change. Concepts explored included the process of change, communication, and building commitment to bring about change within an organization.

MARK 208 Achieving Results Through Influence 3

This course explores how effective leaders achieve results through and with others. Students learn how effective leaders persistently go after goals and measure success in terms of results achieved.

MARK 209 Entrepreneurial Concepts 5

A relevant course looking at ways to start and sustain a small business, students learn techniques on how to maximize limited resources, plan for growth, and remain profitable in today's economy. A detailed business plan as an individual project is completed.

MARK 210 Introduction to Project Management 4

This course is an exploration of practical skills that will enable students to better gain control of, and manage all aspects of business-oriented projects and increase team performance.

MARK 221 International Business Law 2

This course examines legal aspects of conducting business in a global environment, including U.S., foreign, and international legal systems and their affect on companies conducting global business; identifies customs, taxation and global employment regulations.

MARK 222 Supply Chain Operations 5

This course introduces the student to concepts of managing a supply chain on a global level including supply chain operational options such as transportation modes, inventory, time management, landed costs and customs requirements are studied.

CREDITS

MARK 223 Supply Chain Risk Management 2

This course provides an overview to risk management activities including aspects of the operation, marine insurance, transportation, international conventions, international conditions and cargo protection.

MARK 224 Supply Chain Intermediaries 5

This course introduces students to various types of supply intermediaries such as carriers, third party logistics providers, freight forwarders and brokers, U.S. customs regulations and foreign import requirements.

MARK 225 International Marketing 3

This course offers an introduction to international marketing strategies and decisions, including the evaluation of environments to determine viability of global market entry.

MARK 226 Offshore Procurement Process 2

Instruction introduces students to offshore procurements and the logistical elements involved with importing.

MARK 227 International Market Research and Planning 3

This course focuses on methods used to conduct viable market research appropriate to international environments and cultures.

MARK 228 Global Trade Financing 5

Students explore various options for financing international trade including financial policies

MARK 229 International Payment, Credit, and Collections 5

This course examines methods and terms of payment for goods and services associated with global/multinational trade.

MARK 230 Advertising Project-Marketing Implementation 1-5

Complete independent marketing projects, such as business or marketing plan development, advertising project development, international marketing project development, advanced project risk analysis assessment, or international marketing research. Requires instructor approval prior to registration.

MARK 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

MARK 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

MARK 293 Independent Projects 1-5

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MARK 294 Independent Projects 1-5

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MARK 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

MARK 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

MARK 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

MECHANICAL ENGINEERING**MET 101 Computers As An Engineering Tool 4**

Students learn how to navigate through the college's network, intranet and to utilize the Internet for program-related research. Folder and file creation and maintenance will also be taught.

MET 102 Basic Geometric Constructions 8

Using computer-aided-drafting (CAD) software, students learn how to generate all standard geometric and conic forms. Extensive work is required in the development of tangent arcs and planes.

MET 103 Drawing Sheet Standards 4

Using computer-aided-drafting (CAD) software, students learn how to create electronic drawing templates with requisite layers, line types and text styles. Drawing sheet attributes are also be addressed as students customize relevant settings.

CREDITS

MET 104 Introduction to Sketching 30 3

Engineering technicians, working in the field, are often required to hand draw parts, features of parts, and assemblies. This course teaches students to develop basic sketching skills so that they will be able to develop accurate and readable sketches.

MET 105 Orthographic Projections 7

Working with the "glass box" concept of orthogonally projecting an object to the six planes of view, students learn the necessity of strict adherence to the American Standard Arrangement of Views. First angle projection, used primarily in Europe and Asia are also discussed.

MET 106 Sectional Views 5

Students learn to develop an acceptable drawing of section views and to crosshatch the areas sectioned with sectioning lines appropriate to the material in use.

MET 107 Auxiliary Views 5

Proper dimensioning practice dictates that the drafter dimension features (surfaces and angles) only in those views where they are true shapes. Using projection techniques students learn how to "normalize" features found in orthogonal views.

Students study the standards set for dimensioning set by the American National Standards Institute (ANSI) and the American Society of Mechanical Engineers (ASME) in order to understand the principals of proper dimensioning practices. They will then apply those practices to the dimensioning of drawing previously created.

MET 109 Annotative Scaling in AutoCAD 4

Students study the standards set for dimensioning set by the American National Standards Institute (ANSI) and the American Society of Mechanical Engineers (ASME) in order to understand the principals of proper dimensioning practices. They then apply those practices to the dimensioning of drawing previously created.

MET 110 Dimensioning Practices 7

This course is essentially the lab portion of MET 108 in that students dimension all orthogonal, sectional, and auxiliary drawings that were developed in earlier courses. Particular attention is paid to strict adherence to industry standards.

MET 111 Tolerancing 5

Tolerance dimensions allow the specification of a range of accuracy for the shape, size and/or position of features of a product. Students learn how to apply tolerances as they consider fit between mated parts, how features will be inspected, and how to place tolerance symbols on a drawing using CAD software.

CREDITS

CREDITS

MET 201 Machine Shop Drawings 4
Students learn how to draw and dimension working/production drawings necessary for machining, fabrication and/or assembly. The ability to fully annotate production drawings (general and specific notes, parts lists, and revision notes) is also an instructional objective of this course.

MET 202 Threads, Fasteners, and Springs 3
Students learn how to draw detailed, schematic and simplified threads for all thread forms common to industry. Thread specifications are examined thoroughly as are standard and specialized screw/bolt head types. Helical springs (compression, extension and torsion) are also be examined.

MET 203 Gears 4
Students study the characteristics of spur, worm and bevel gears and learn to calculate the gear ratio and rpm of two mating spur gears. Given the pitch diameters, these gears, and their respective tooth forms, a detailed drawing is created.

MET 204 Cams 4
This course provides students with the ability to develop displacement profiles for cams based upon given specifications and follower motions. A series of cams will then be drawn from these profiles.

MET 205 Pneumatic/Hydraulic Symbols 3
Students study common pneumatic and hydraulic symbols and develop computer-aided-drafting (CAD) symbols appropriate for industry applications.

MET 206 Piping and Instrumentation Drawings 4
Using the symbols developed in MET 205, students replicate industrial piping/process and instrumentation drawings (P&IDs).

MET 207 Valve Sections 4
Students develop sectional views of gate, globe, and check valves displaying details of all components. Addition study of valve applications may be provided through independent work in the Fire Protection Engineering program.

MET 208 Pump Section 4
The application of various pump classes and types is examined in order to determine how they add hydraulic energy to the movement of water. As with valves in MET 207, sectional views of a variety of pumps are developed in order to facilitate the students' understanding of their function.

CREDITS

MET 209 Production Drawings 4
Given duct system characteristics for airflow requirements, students develop detailed drawings of ventilation systems. Students complete these drafting projects in cooperation with the Sheet Metal Technology program.

MET 210 Duct Fitting Symbols 3
Students study common sheet metal duct fittings and develop computer-aided-drafting (CAD) symbols appropriate for industry applications.

MET 211 Flat Pattern Development 5
Using the principles of triangulation and radial line development, students develop flat patterns for such common types of sheet metal fittings as elbows and transitions.

MET 212 Basic Air Flow Systems 3
Students study the means by which air is distributed in mechanically ventilated spaces by means of fans, ductwork, and diffusers.

MET 213 Paper Space, Layout, and Viewports 5
Students learn to use space, layout, and viewports when working on CAD projects.

MET 214 Engineering Projects I 7
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.

MET 215 Axonometric Drawings 5
Students learn to differentiate between types of axonometrics and to draw axonometric drawings including plan obliques and isometrics.

MET 216 Engineering Projects II 7
This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas.

MET 217 Career Advancement Strategies 3
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

MET 291 Practical Applications 1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

MET 292 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

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MET 296 Work-based Learning Experience 1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

MET 297 Work-based Learning Seminar 1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

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OCCUPATIONAL THERAPY ASSISTANT

OTA 101 Introduction to Occupational Therapy 4
This course provides an overview of the OTA program and the profession and the roles and responsibilities of OT practitioners in health care, community-based settings and school systems. Basic terminology, principles, philosophies and ethics are introduced for a better understanding of occupational therapy, the clients served, and other health care professionals working in the settings. Students gain computer literacy skills and library skills for accessing information about professional issues.

OTA 102 Health and Wellness and the OTA 3
Principles and strategies for managing health and promoting wellness are practiced. Importance of balancing areas of occupation for success in occupational roles are examined and applied.

CREDITS

OTA 103 Functional Movement	5
This course covers basic principles of kinesiology, biomechanics, and associated biological systems related to daily living activities. Techniques for body mechanics, safety and mobility, energy conservation, task simplification are covered. Upper extremity functions for everyday tasks are emphasized.	
OTA 104 Therapeutic Use of Self	5
Students in this course explore personal values and cultural attitudes that relate to individual performance and group interactions. Group roles, learning styles, leadership, and communication styles will be examined. Students develop basic skills for observation, interviewing, communication and documentation. Personality, insights, perceptions and judgments as part of the therapeutic process are covered.	
OTA 105 Nervous System Functioning	4
Basic principles of neurology and associated sensory and cognitive systems related to daily living activities. Deficits in sensory, perceptual and cognitive functioning and effects on occupational performance are examined.	
OTA 106 Therapeutic Activities and Performance I	5
This course covers areas of human occupation through analysis of activities of daily living-work, leisure, play and self-care. Students develop an understanding of the nature and value of occupation to support client participation and performance through therapeutic crafts and daily living activities.	
OTA 107 Developmental Disabilities and OT 5	
Congenital conditions, diseases, and disabilities are covered and their effects on the psychological, physiological, and social domains of occupational behavior. Students develop observation and assessment skills, and teaching and grading self-care, work, leisure and play occupations for individuals with developmental challenges.	
OTA 108 Applied Experience – Developmental Settings	1
Students participate in observations and guided practice opportunities for applying OT principles in settings serving individuals with developmental challenges.	
OTA 109 Adaptive Technologies	5
Adaptive technology used in occupational therapy setting is explored through laboratory practice and field site visits. Low technology such as prosthetics, positioning equipment and adaptive aides for daily living to more advanced computer technology utilized for environmental control and augmentative communication are covered.	

CREDITS

OTA 110 Documentation Skills	3
Students learn about record keeping, progress note writing, and assisting the OT with functional goals and objectives for various OT settings. Overview of terminology of assessment results and treatment plans covered.	
OTA 201 Therapeutic Activities and Performance II	5
More advanced course to develop creative problem-solving, clinical reasoning, and documentation skills through exposure to barriers for safety and independence. Models and theories of occupation are applied and the effects on performance are examined. Students examine universal design principles and environmental modifications for work, home and the community.	
OTA 202 Psychosocial Dysfunctions: Treatment Principles and Applications	8
Conditions that lead to psychiatric and social-emotional challenges are examined. Clinical features, medical management and issues impacting OT are covered. This course focuses on the further development of observation, assessment skills, task analysis and interventions for individuals with psychosocial challenges. Quality of life and meaningful occupations are emphasized.	
OTA 203 Applied Experience – Mental Health Settings	1
Students participate in observations and guided practice opportunities for applying OT principles in community mental health settings serving individuals with psychosocial challenges.	
OTA 204 Seminar – Applied Mental Health	1
Discussion and problem-solving of fieldwork experiences are emphasized.	
OTA 210 Physical Disabilities: Treatment Principles and Applications	8
Trauma, illness, and other conditions that lead to physical dysfunction are examined. Therapy modalities to maximize independence, safety and participation in meaningful occupation are practiced. This course focuses on the further development of the student's skills in clinical reasoning carrying out the treatment plan.	
OTA 211 OTA and Special Settings	3
Some settings require the OT assistant to be an independent self-starter. Occupational therapy practice with elderly clients in long term care, assisted living and home health care, pediatric clients in school settings, and injured workers in work condition programs are covered.	

CREDITS

OTA 212 Applied Experience – Physical Rehabilitation Settings	1
Students participate in observations and guided practice opportunities for applying OT principles in settings serving individuals with physical disabilities.	
OTA 213 Seminar – Applied Physical Rehabilitation	1
Discussion and problem-solving of fieldwork experiences are emphasized.	
OTA 218 Professional Issues for the OTA	3
Preparation for fieldwork, certification and employment of the OTA, as well as, workplace issues and job-related responsibilities of OTA are covered. The OTA as a manager, contractor, private practitioner and advocate of occupational therapy services are presented.	
OTA 220 Clinical Fieldwork Level II – Rotation A	11
The first of two eight-week off-campus work experiences in a clinical setting under the supervision of a licensed occupational therapist or a certified occupational therapy assistant. This forty-hour per week rotation is to further develop and practice the skills of an entry-level OTA and must be successfully completed before student is eligible for the national certification examination.	
OTA 221 Clinical Fieldwork Level II – Seminar A	1
Discussion and problem-solving of fieldwork experiences and preparation for the national board exam are emphasized.	
OTA 222 Clinical Fieldwork Level II – Rotation B	11
The second of two eight-week career experiences working in a clinical setting under the supervision of a licensed occupational therapist or a certified occupational therapy assistant. This 40-hour per week rotation is to further develop and practice the skills of an entry-level OTA and must be successfully completed before student is eligible for the national certification examination.	
OTA 223 Clinical Fieldwork Level II – Seminar B	1
Discussion and problem-solving of fieldwork experiences and preparation for the national board exam are emphasized.	
OTA 291 Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	

CREDITS

OTA 292 Independent Projects 1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

OTA 293 Independent Projects 1-5
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OTA 296 Work-based Learning Experience 1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

OTA 297 Work-based Learning Seminar 1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

OTA 298 Work-based Learning Seminar – No Seminar 1-19

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

PARAEDUCATOR FOUNDATIONS

SOC 111 Understanding Diversity 5
This course focuses on helping students recognize and appreciate diversity in a multicultural society.

PSYC& 100 General Psychology 5
This course is an introduction to psychology for people with an interest in all that influences human behavior.

EDU 101 Introduction to School Law 3
This course is an introduction to the history, political structure, and legal framework of the public school system with emphasis on the basics of school law and how it applies to employees, students, and parents.

CREDITS

EDU 103 Child Growth and Development 3
Students explore the unfolding of human development from the prenatal period through adolescence and the transition to adulthood. They learn how children grow physically, cognitively, and emotionally through all developmental stages.

EDU 151 Abuse and Neglect of Children 1
This course is an introduction to the causes, extent, and dynamics of child abuse and neglect along with mandatory reporting guidelines for educators.

SPED 101 Educating Students with Disabilities 3

This course is an introduction to the various disabilities with implications for learning and life. Individuals working with students with disabilities in general or special education classrooms will directly benefit from this course.

POWER SPORTS & EQUIPMENT TECHNOLOGY

POW 101 Introduction to Power Sports 5

This course provides students with training in workplace human relations, communications, shop safety environmental awareness, tools and equipment, measuring, fasteners, and mechanical and mathematical principles required within the occupation.

POW 102 Pre-Delivery Maintenance 3
Students learn to prepare new equipment for delivery to the consumer.

POW 103 Seasonal Maintenance 5
Students learn to prepare equipment for the recreational/work season and provide the service necessary at the end of the work/recreational season.

POW 104 Periodic Maintenance 5
Students learn to build their skills in maintaining optimum equipment/vehicle performance during the work/recreational season.

POW 120 Engines – Failure Analysis 5
Students are introduced to the theory of internal combustion engines and learn how to diagnosis problematic engines and analyze failed engines.

POW 121 Engine Repair Methods 5
Students learn to correctly disassemble, inspect, and machine engines to return to service. Special emphasis is placed upon the utilization of service manuals and manufacturers' guidelines.

POW 122 Engines Installation Methods 5
Students learn to correctly assemble, perform the necessary adjustments, and correctly install engines in vehicles. Special emphasis is placed upon the utilization of service manuals and manufacturers' guidelines.

CREDITS

POW 130 Exhaust Systems 5
This course is an introduction to the theories of induction. Students learn to identify, diagnosis, repair, and maintain carburetor, electronic fuel injection, and direction injection systems.

POW 131 Lubrication/Cooling Systems 5
Students are introduced to the theories of cooling and lubrication and learn to identify, diagnosis, repair, and maintain lubrication and cooling systems. Special emphasis is placed upon the utilization of service manuals and manufacturers' guidelines.

POW 132 Advanced Engine Service 5
Students focus on engine performance and drivability and learn to identify, diagnosis, and repair engine performance problems. Special emphasis is placed upon the utilization of service manuals and manufacturers' guidelines.

POW 140 Fundamentals of Electricity 3
This course is an introduction to electrical systems. Students receive electrical and electronic theory, learn to use electrical test equipment, and provide basic electrical systems inspections and service.

POW 141 Electrical Systems 90 5
Students are introduced to the electrical systems encountered in various types of motorized vehicles. Special emphasis is placed upon the utilization of service manuals and electrical schematics.

POW 142 Electrical Systems - Diagnosis 5
Students receive training and practice in servicing and repairing the electrical systems of various types of motorized vehicles. This includes problem identification, diagnostic testing, repair, and maintenance of batteries, starting, charging, ignition, and accessory systems.

POW 143 Brake Systems 4
Students are introduced to brake theory, identification, diagnosis of problematic brake systems and the repair and maintenance of various brake systems.

POW 150 Introduction to Power Trains 3
Students are introduced to power train theory, gear ratios, diagnosis of problematic power trains, and analysis of failed power trains.

POW 151 Power Train Service 5
Students receive training in the servicing and repairing of the various modes of transmitting engine power. This includes clutches, gear drive, belt/chain drive systems, and manual starters.

POW 152 Introduction to Marine Propulsion 3
Students are introduced to marine propulsion theory, gear ratios, diagnosis of problematic propulsion systems, and analysis of failed propulsion systems.

CREDITS

POW 153 Marine Propulsion Service 5

Students receive training in servicing and repairing the various modes of transmitting engine power to the water. This includes marine gear drive systems and jet pumps.

POW 160 Introduction to Chassis 3

Students are introduced to chassis theory, design, diagnosis of problematic chassis, and chassis service/repair methods.

POW 161 Chassis Service 5

Service/technician students receive shop experience in maintaining or repairing frame and suspension systems including steering systems, wheels/tire assemblies, and suspension systems.

POW 162 Advanced Projects 7

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

POW 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

POW 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

POW 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

POW 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

POW 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

CREDITS

POW 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

POW 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

PRACTICAL NURSE**PNURS 101 Principles of Medical Surgical Nursing 1**

This course provides concepts and principles that are common to client care regardless of specific system disorders. Discussion focuses on causes and nursing treatment of diseases as they relate to physiological stress and on individual differences in the need for rest, activity, solitude, social interaction, pain response and relief.

PNURS 102 Basic Nutrition 4

The students learn basic nutrition concepts and their modification for life cycle, culture, and illness. The course highlights ways they can integrate good nutrition into their lifestyles. Principles of digestion and absorption, the function of nutrients, lifecycle nutritive needs, disease prevention, diet modifications, and weight controls are covered.

PNURS 103 Nursing Math/Pharmacology 6

This course focus is on the practical nurse's role in medication administration to persons of all ages. Basic concepts, various medication delivery systems, dosage calculation, drug classifications, and nursing implications are presented for the various bodily systems. Safe administration and documentation of medications are presented in the laboratory setting.

PNURS 104 Principles of Geriatric Nursing 2

Students receive theory and application skills regarding the developmental stage of late adulthood. Emphasis is on principles of nursing for the aging client, the aging process, enhancement of self-care, and an introduction to responsibilities of assisting clients and families dealing with grief and loss. Discussions focus on cultural diversity, legal/ethical issues, therapeutic communication, and interpersonal skills.

PNURS 105 Personal Vocational Relationships I 1

Students receive an overview of the health professions and the healthcare delivery systems with emphasis on the LPN's role in the health care working environment. Topics include nursing history, trends, disease prevention and wellness promotion, and guidelines for legal and ethical practice.

CREDITS

PNURS 106 Nursing Fundamentals I 7

This course provides the beginning nursing core upon which all subsequent nursing courses are built with emphasis on man as a holistic being with basic human needs. Included are specific nursing care principles common to all clients. Discussion focuses on identifying the needs of individuals within a family and community environment.

PNURS 120 Principles of Microbiology/ Infection Control 1

Basic concepts of microbiology are presented to students with discussion focusing on the types of microorganisms their role in the process of infection, and methods of asepsis for disease prevention. Emphasis is placed on the practical nurse's use of the nursing process to promote, maintain, and/or restore health.

PNURS 121 Care of the Diabetic Patient 3

This course provides an overview of the care and management of the patient with Diabetes Mellitus using the nursing process as a framework. Focus is on differentiating Diabetes Type I from Type II and discussion of the pathophysiology and medical treatment of both. Causes, complications of diabetes, patient education, and community resources are also discussed.

PNURS 122 Personal Vocational Relationships II 2

This course focuses on the nursing process and basic therapeutic communications skills. Basic human needs and healthy adjustments are also discussed with an emphasis on cultural, ethnical, and religious needs.

PNURS 123 Respiratory Care 3

This course provides an overview of care and management of patients with respiratory diseases with emphasis on etiology, pathophysiology, clinical signs, and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist the clients' return to a maximum level of function.

PNURS 124 Orthopedics 2

This course applies nursing process and health sciences foundations to the assessment, care, and teaching of persons with acute and chronic conditions of the musculoskeletal system. Emphasis is on nursing interventions which prevent complications, strengthens the client capacity for self-care, and assist the client in achieving optimum levels of functioning.

CREDITS

- PNURS 125 Growth and Development 2**
Students receive theory and applications skills regarding the developmental stages of infant through adolescence as they relate to neuromuscular, intellectual, language, and psychosocial functions. They examine means of providing guidance and support through all stages of development.
- PNURS 126 Cardiovascular Disorders 4**
This course provides an overview of the care and management of patients with cardiovascular disorders. Diseases are studied in relation to etiology, pathophysiology, clinical signs, and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client's return to maximum levels of function.
- PNURS 127 Nursing Fundamentals II 4**
This course provides advanced nursing skills necessary for successful transition into clinical settings. Included are special nursing care principles common to all clients. Discussion focuses on identifying the needs of individuals within a family and community environment.
- PNURS 128 Clinical I 3**
Within a variety of clinical settings, students begin to utilize the nursing process to give comprehensive care to diverse population of clients. Clinical experience is correlated with theory under the guidance of faculty and enables student to implement skills and apply theory learned in the classroom.
- PNURS 129 Clinical Seminar 1**
This course provides students with information needed for transition to practice. Students are introduced to leveled objectives, chart review, care planning, and allows the students an opportunity to practice physical assessment prior to actual care of clients.
- PNURS 130 Nursing Simulation Lab 2**
This course allows students to practice emergency situations in a controlled setting. The student nurse, using the nursing process as the focus will demonstrate nursing interventions and discuss the pharmacology/medication administration and diagnostic testing use in a variety of emergency scenarios.
- PNURS 131 Mental Health Issues 2**
Students receive an overview of mental health care, laws and regulations, classification and prevention of mental illness, services available, and examines the impact of mental illness on the individual, the family, and the community. The diseases are studied in relation to etiology, pathophysiology, clinical signs and symptoms and medical management.

CREDITS

- PNURS 132 Newborn/Maternal/Women's 3**
Students apply practical nursing concepts the care of women and newborns. Emphasis is on health promotion through antepartum, intrapartum, and postpartum stages of pregnancy as well as complications that may occur during pregnancy including complications of pregnancy. Discussions integrate holistic and self-care principles to assist women in general and the family as a whole.
- PNURS 133 Ophthalmology/Audio 1**
This course provides an overview of the care and management of patients with disorders of the eye and ear. Disorders are studied in relation to etiology, pathophysiology, clinical signs and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client's return to maximum levels of function.
- PNURS 134 Perioperative Nursing 1**
This course provides an overview of the care and management of perioperative patients. Using the nursing process as the focus and supporting the client's self-care capability, students discuss nursing interventions, principles of pharmacology/medication administration, diagnostic testing, and nursing interventions that will assist the client in achieving optimal levels of functioning.
- PNURS 135 Endocrine 1**
This course provides an overview of the care and management of the patients with endocrine disorders. Diseases are studied in relation to etiology, pathophysiology, clinical signs, and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client's return to maximum levels of function.
- PNURS 136 Gastrointestinal 2**
This course provides an overview of the care and management of the patients with gastrointestinal disorders. The diseases are studied in relation to etiology, pathophysiology, clinical signs, and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client's return to maximum levels of function.
- PNURS 137 Genitourinary 2**
This course provides an overview of the care and management of the patients with genitourinary disorders. Diseases are studied in relation to etiology, pathophysiology, clinical signs, and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client's return to maximum levels of function.

CREDITS

- PNURS 138 Clinical II 3**
Within a variety of clinical settings, using the experience gained in PNURS 128, students continue to utilize the nursing process to give comprehensive care to diverse population of clients. Clinical experience is correlated with theory under the guidance of faculty and enables student to implement skills and apply theory to practice.
- PNURS 139 Clinical Seminar 1**
This course allows students and faculty to examine and discuss current topics and issues as they relate to the practice and roles of the practical nurse.
- PNURS 140 Oncology 3**
This course provides an overview of the care and management of the patients with cancer. Cancer is studied in relation to etiology, pathophysiology, clinical signs, and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client's return to maximum levels of function.
- PNURS 141 Pediatrics 2**
The course provides an overview of the care and management of children with healthcare problems. Discussions integrate principles of nutrition therapy and pharmacology/medication administration, cultural diversity, legal/ethical issues, and health teaching which are utilized as a framework to integrate holistic and self-care capabilities for the family.
- PNURS 142 Neurology 3**
This course provides an overview of the care and management of patients with disorders of the nervous system. Diseases are studied in relation to etiology, pathophysiology, clinical signs, and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client's return to maximum levels of function.
- PNURS 143 Reproductive/Breast Disorders 1**
This course provides an overview of the care and management of patients with disorders of the breast and reproductive system. Diseases are studied in relation to etiology, pathophysiology, clinical signs, and medical management. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client's return to maximum levels of function.
- PNURS 144 Legal/Boundaries 1**
Students review legal requirements for licensure as a practical nurse. Liability issues related to practice, as well as ethical issues are discussed. Students view the Washington Administrative Code for the practical nurse and discuss scenarios of how to work within professional boundaries.

	CREDITS
PNURS 145 Clinical III	2
Within a variety of clinical settings, using the experience gained in PNURS 138, students continue to utilize the nursing process to give comprehensive care to diverse population of clients. Clinical experience is correlated with theory under the guidance of faculty and enables student to implement skills and apply theory to practice.	
PNURS 146 Clinical Seminar	1
This course allows students and faculty to examine and discuss current topics and issues as they relate to the practice and roles of the practical nurse.	
PNURS 147 Preceptorship	4
This course includes an experience with a staff licensed practical nurse as a mentor or preceptor in a selected clinical area for the student's final clinical experience.	
PROFESSIONAL-TECHNICAL EDUCATION	
EDU 102 Industrial Safety	1
This course focuses on establishing and maintaining a safe working environment as well as teaching students about general safety and industrial hygiene.	
EDU 104 Philosophy of Technical Education	3
This course explores the evolution, philosophy, and framework of career and technical education.	
EDU 105 Methods of Teaching	3
This course provides tools and strategies for effective teaching in a career and technical education classroom or lab setting, including facilitating and evaluating learning.	
EDU 106 Occupational Analysis	3
Students learn skills for performing an occupational analysis of a specific job as the basis for creating a competency-based curriculum.	
EDU 107 Course Organization	3
This course focuses on essential skills for developing and organizing a course in a career and technical education setting, including lesson planning, student assessment, and developing a syllabus.	
EDU 201 Teaching Practicum I	12
Students enhance professional skills and work toward attainment of the skills required of a fully-qualified professional-technical educator. Prerequisite: Approval by Dean, Educator Training Center.	
EDU 202 Teaching Practicum II	12
Students enhance professional skills and work toward attainment of the skills required of a fully-qualified professional-technical educator. Prerequisite: EDU 201.	

	CREDITS
EDU 211 Administration Practicum I	12
Students enhance professional skills and work toward attainment of the skills required of a fully-qualified instruction administrator. Prerequisite: Approval by Dean, Educator Training Center.	
EDU 212 Administration Practicum II	12
Students enhance professional skills and work toward attainment of the skills required of a fully-qualified instruction administrator. Prerequisite: EDU 201 or EDU 211.	
EDU 220 Professional/Technical Education Capstone	5
Students document professional skills and attainment of the skills required of a fully-qualified professional-technical educator. Prerequisites: EDU 202 and a minimum of five regular quarters of teaching experience.	
ELECTIVES LIST *	
EDU 101 Introduction to School Law	3
This course is an introduction to the history, political structure, and legal framework of the public school system with emphasis on the basics of school law and how it applies to employees, students, and parents.	
EDU 108 Introduction to Professional/Technical Education	3
This course provides an introduction to professional/technical education and the fundamentals of competency-based education models.	
EDU 109 Information Literacy	1
This course focuses on enhancing research skills and integrating information literacy into the curricula.	
EDU 221 Professional/Technical Specialization	12
Students document professional skills and experience acquired prior to obtaining their position as an instructor to enhance their ability to accurately assess their present skills against the Washington State Skills Standards for Professional-Technical Educators. Prerequisites: Initial certification as a professional-technical instructor and approval by Dean, Educator Training Center.	
EDU 222 Current Topics for Professional/Technical Educators	2
Students document research/learning acquired at professional conferences which are a minimum of two days in duration, with an emphasis on strategies that can be used to support students within professional-technical oriented programs of study. Prerequisites: Current professional-technical instructor and approval by Dean, Educator Training Center.	

	CREDITS
EDU 223 Industry-Based Professional Development I	2
Students document skills-enhancement activities conducted during return-to-industry endeavors which are at least five days in duration and directly related to one's teaching assignment. Prerequisites: Approval by Dean, Educator Training Center.	
EDU 224 Industry-Based Professional Development II	3
Students document skills-enhancement activities conducted during return-to-industry endeavors which are at least ten days in duration and directly related to one's teaching assignment. Prerequisite: Approval by Dean, Educator Training Center.	
EDU 226 Student Development and Leadership	3
This course focuses on integrating student leadership activities into career and technical education classrooms as well as operating student leadership organizations.	
EDU 151 Abuse and Neglect of Children	1
This course is an introduction to the causes, extent, and dynamics of child abuse and neglect along with mandatory reporting guidelines for educators.	
EDU 228 Work-Based Learning Coordination	3
This course focuses on building a functional framework to coordinate a work-based learning program. It meets the state requirement for a work-based learning endorsement.	
EDU 229 Diverse Needs of Students	3
Students learn about meeting the diverse needs of today's students with an emphasis on adolescent development, cultural diversity, and students with disabilities.	
EDU 230 Teaching Practicum – CTE	1
Students perform a practical teaching experience in a career and technical education setting. Prerequisites: (1) Successful completion of all other CTE teacher preparation courses; (2) First aid/CPR/blood-borne pathogens certification; and (3) fingerprint and background check.	
EDU 231 Advanced Teaching Methods	3
This course offers advanced teaching strategies for individuals with experience teaching in a career and technical education setting. Prerequisite: EDU 105	
EDU 232 Portfolio Development	1
Students document professional skills, activities, and education as a culminating activity for teaching certification or tenure process.	
SOC 111 Understanding Diversity	5
This course focuses on helping students recognize and appreciate diversity in a multicultural society.	

PSYC& 100 General Psychology **5 CREDITS**
This course is an introduction to psychology for people with an interest in all that influences human behavior.

SHEET METAL TECHNOLOGY

SHME 101 Introduction to Sheet Metal Technology **3 CREDITS**

Students are introduced to basic hand tools and machines that are used within the sheet metal shop atmosphere. Students are provided instruction and training in workplace human behaviors and interpersonal skills required within the sheet metal occupation. Attendance, punctuality, self-management skills, classroom, shop participation and employer expectations are emphasized.

SHME 102 Metalworking Machines Technology **4 CREDITS**

Students learn how to use various specialty hand and power operated metalworking machines in the shop atmosphere that were introduced in SHME 101. These include metal cutting shears, bending machines, forming machines, and common power tools.

SHME 103 Fittings Fabrication I **7 CREDITS**

Students learn how to fabricate a variety of commonly used heating and air conditioning (HVAC) elbows, "Y" branches, and transitional fittings. Students assemble fabricated fittings to form a maze and fabricate custom fittings to complete final assembly. This area of the program begins developing student's technical reading skills.

SHME 104 Principles of Health and Safety **5 CREDITS**

Students are introduced to the principles of safety and health and hazardous communications as they relate to construction. An introduction to the OSHA/WISHA guidelines, occupational standards are included. Students complete written assignments on these subjects. Students apply various principles in the shop area and as they proceed through the program.

SHME 105 Materials Technology **3 CREDITS**

Students are introduced to and learn how to apply various elements of material handling and transporting goods used in the sheet metal industry. The subjects covered are tying knots, crane signals, creating travel plans and becoming certified for a straight mast forklift operator.

SHME 106 Hand Tools and Equipment **4 CREDITS**

Students learn how to properly use various specialty hand tools in the shop atmosphere and are instructed on the proper use of circumference rulers, framing squares, numerous marking tools, metal cutting shears and joining tools.

SHME 107 Applied Math **5 CREDITS**

Students are introduced to and develop the skills to understand and solve mathematical problems that have direct application to the fabrication and cost estimation of sheet metal components. These assignments include the foundational principals of basic mathematics with equations involving fractions, decimals, percentages, practical geometry construction and trigonometry.

SHME 108 Introduction to Drafting **2 CREDITS**

Students are introduced to basic terminology, drafting lines, labeling and object projection. Using the proper techniques, students create by hand drafting assignments that develop basic, orthographic and isometric views of shapes and sheet metal components.

SHME 109 Drafting Techniques **5 CREDITS**

Students develop the skills necessary to visualize, draft and understand common and complex sheet metal components. Students apply triangulation principles and are introduced to parallel line development techniques. Pre-requisite: SHME 108

SHME 110 Layout Math **3 CREDITS**

Students learn how to apply additional mathematical functions to perform pattern and line development for assorted arch lengths, squares, rectangles, and round fittings commonly used in the sheet metal industry. Pre-requisite: SHME 107

SHME 111 Technology of Seams and Locks **3 CREDITS**

Students use a variety of machines to form complex seams, cleats, kinks and locks used in the fabrication and assembly of ventilation fittings. Pre-requisite: SHME 102

SHME 112 Fittings Fabrication II **8 CREDITS**

Students' mastery of fabrication and layout skills are applied with the completion of the thirty fittings exam. Thirty commonly used components are produced within thirty hours. Students exercise their critical thinking skills as well as the production techniques that they have learned to this point in the program.

SHME 120 Introduction to Sheet Metal Technology **3 CREDITS**

Students are introduced to basic hand tools and machines that are used within the sheet metal shop atmosphere. Students are provided instruction and training in workplace human behaviors and interpersonal skills required within the sheet metal occupation. Attendance, punctuality, self-management skills, classroom, shop participation and employer expectations are emphasized.

SHME 121 Principles of Health and Safety **2 CREDITS**

Students are introduced to the principles of safety and health and hazardous communications as they relate to construction. Students complete written assignments on these subjects. They apply various principles in the shop area and as they proceed through the program.

SHME 122 Hand Tools and Equipment **3 CREDITS**

Students learn how to properly use various specialty hand tools in the shop atmosphere and are instructed on the proper use of circumference rulers, framing squares, numerous marking tools, metal cutting shears and joining tools. Pre-requisite: SHME 120

SHME 123 Metalworking Machines Technology **2 CREDITS**

Students learn how to use power operated metalworking machines in the shop atmosphere. These include metal cutting shears, bending machines, forming machines, and common power tools. Pre-requisite: SHME 120

SHME 124 Fittings Fabrication I **4 CREDITS**

Students learn how to fabricate a variety of commonly used heating and air conditioning (HVAC) elbows, "Y" branches, and transitional fittings. Students practice assembling a portion of these fittings. Students fabricate several additional custom fittings. This area of the program begins developing student's technical reading skills.

SHME 125 Applied Math **3 CREDITS**

Students are introduced to and develop the skills to understand and solve mathematical problems that have direct application to the fabrication and cost estimation of sheet metal components. These assignments include the foundational principals of basic mathematics with equations involving fractions, decimals, areas and an introduction to trigonometry.

SHME 126 Technology of Seams and Locks **2 CREDITS**

Students use a variety of machines to form complex seams, cleats, kinks used in the fabrication and assembly of ventilation fittings. Pre-requisite: SHME 123

SHME 127 Prefabricated Components **2 CREDITS**

The sheet metal (HVAC) production industry makes available to contractors a variety of installation components, thus saving the sheet metal worker considerable fabrication time. During this course, students learn to identify these system components and applications.

SHME 128 Material Handling Technology **2 CREDITS**

Students are introduced to and learn how to apply various elements of material handling and transporting goods used in the sheet metal industry. The subjects covered are tying knots, crane signals, creating travel plans.

SHME 129 Wood Working Tools **1 CREDITS**

Students learn how to safely use carpentry power tools used for modifying wooden structures to accept HVAC and ducting installations.

SHME 130 Carpentry Installation **3 CREDITS**

Students learn to measure, lay out and cut wooden elements of the residential structure using these openings to allow for the installation of HVAC systems and ductwork. Pre-requisite: SHME 129

	CREDITS		CREDITS		CREDITS
SHME 131 Air Properties Technology	1	SHME 203 Blueprint Reading Applications	5	SHME 211 Commercial Projects	6
This course is an introduction to the properties of air, air handling principles, and HVAC system requirements.		Advanced students research information from numerous types of blueprints dealing with all aspects of the construction process. Students are assigned plans and answer questions pertaining to the computer aided designs of highly detailed ventilation systems that are installed in current applications. Pre-requisite: SHME 202		Advanced sheet metal students apply their knowledge of design, lay out, and fabrication to real world, client projects. This includes handling the project from inception from client's requirements, through estimation of materials and shop costs, to completion of finished product.	
SHME 132 Duct installation	3	SHME 204 Layout Drafting II	3	SHME 291 Practical Applications	1-18
Student learn how to install ducting systems, to include main supply ducts, return ducts, wall stacks, and lateral ducts. Pre-requisite: SHME 124		Advanced sheet metal students continue to develop the spatial thinking skills necessary to visualize and understand more complex sheet metal components. Students apply principles dealing with parallel line and radial line development. Pre-requisite: SHME 109		This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
SHME 133 Residential Venting Technology	2	SHME 205 Layout Drafting III	3	SHME 292 Independent Projects	1-5
Students learn how to determine proper size and install a variety of venting examples for home heating and exhaust systems.		Advanced sheet metal students apply principles dealing with parallel line, radial line, triangulation and/or combinations of all three areas of layout. Pre-requisite: SHME 204		This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
SHME 134 Unit Operations	2	SHME 206 Complex Components Fabrication	5	SHME 293 Independent Projects	1-5
Students learn about the operational components of various HVAC systems used in residential installations. Systems include electric furnaces, heat pumps, and gas furnaces. Pre-requisite: SHME 131		Advanced sheet metal students are challenged to apply advanced principles to design, layout, and efficiently fabricate complex HVAC ducting elbows, branches, offsets, tapers and transitions. Pre-requisite: SHME 204 and 205		This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
SHME 135 Code Principles	2	SHME 207 Energy Codes	3	SHME 294 Independent Projects	1-5
Students learn how to research, follow, and apply local residential and uniform building codes and guidelines as they pertain to the installation of HVAC systems, ducting, and venting.		Advanced students are introduced to versions of the Washington State Energy Codes, Uniform Mechanical Codes and International Residential Codes. Research is conducted to answer numerous questions about items that directly apply or are associated with the installation or fabrication practices of various sheet metal applications.		This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
SHME 136 Gas Piping Technology	2	SHME 208 Duct Design and Air Balancing - Basics	5	SHME 296 Work-based Learning Experience	1-18
Students learn to select appropriate size pipe, how to cut pipe, and how to use a pipe machine to allow for appropriate fittings.		Advanced students are introduced to terminology pertaining to this important area of the sheet metal industry. Using mathematical formulas, elements such as friction loss, dynamic loss, cubic feet per minute, feet per minute, cross sectional area, fan pulley sizes, BTUs, duct sizes and round substitutions are calculated for numerous applications.		Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
SHME 137 Duct Design Technology	3	SHME 209 Duct Design and Air Balancing - Advanced	5	SHME 297 Work-based Learning Seminar	1-2
Students are introduced to, and learn how to use a Ductulator® to determine duct sizing. Pre-requisite: SHME 131		Advanced students use computer programs to determine proper heating and cooling loads, friction loss, dynamic loss, cubic feet per minute, feet per minute, cross sectional area, BTUs, duct sizes, critical paths and round substitutions for numerous applications. Pre-requisite: SHME 208		Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
SHME 138 Preventive Maintenance	2	SHME 210 Solar Heating	2	SHME 298 Work-based Learning – No Seminar	1-18
Students learn how to perform basic preventive maintenance procedures on a variety of furnaces and heat pumps. Pre-requisite: SHME 134		Advanced students are introduced to terminology and principals and component identification of solar energy systems. Using mathematical formulas, they determine the operating effects and missing data for simulated applications.		This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	
SHME 201 Introduction to Architectural Sheet Metal	3				
Advanced students are introduced to principles and applications of architectural flashings, coping, gutters, downspouts, louver and conductor heads. Tasks involve design, fabrication and installation of these items.					
SHME 202 Introduction to Blueprint Reading	3				
Advanced students are introduced to blueprint organization, terminology, sketching techniques, symbols, and lines. Using the proper techniques, students hand sketch assignments that develop oblique, perspective, isometric and orthographic projections. Students are introduced to different scales of measurements and construction materials.					

CREDITS

SOFTWARE DEVELOPMENT

SOFT 101 Computer Concepts 5

This course provides an overview of basic computer concepts as they apply to MIS professionals. Emphasis is on basic machine architecture including data storage, manipulation, the human-machine interface including the basics of operating systems, algorithms and programming languages.

SOFT 102 Programming Fundamentals 5

In this course, students are provided with the fundamental skills needed for designing computer programs. Focus is on problem analysis and developing algorithms for the step by step solutions to problems

SOFT 103 Operating Systems 5

This course is designed to introduce the student to an operating system environment. Instruction includes installation and configuration; learn your way around the desktop, as well as building skills using commands.

SOFT 121 C-Sharp I 5

This hands-on course is ideal for learning programming in a Windows environment. Topics include: introduction to C#, controls, variables, constants, dialog boxes, menus, lists, loops and arrays. This class incorporates basic concepts of programming, problem solving, and programming logic and design techniques. PREREQUISITE: Programming Fundamentals

SOFT 122 C-Sharp-II 5

This in-depth course will explore intermediate and advanced technologies using the .NET framework. Topics include conditional statements, objects, structures, classes, properties, inheritance, exception handling, string formatting, file handling, and language fundamentals. PREREQUISITE: SOFT 121

SOFT 132 C++ II 3

This course includes object-oriented design in the C++ language. Topics covered include inheritance, Dynamic memory allocation, namespaces and code reuse. Prerequisite: C++ I

SOFT 142 Programming in JAVA II 5

Develops fundamental concepts and techniques for analysis, design, and implementation of computer programs using an object-oriented language. Includes graphical user interfaces, event driven programming, recursive techniques, and simple data structures Prerequisite Java I

SOFT 205 Visual Basic I 5

This course introduces event-driven computer programming using the Visual BASIC programming language. Topics include input/output operations, syntax, program structure, data types, arithmetical operations, functions, loops, conditional Statements and other related topics. Prerequisite: SOFT 102

SOFT 206 Visual Basic II 5

This is an advanced course for Visual Basic.NET, an object-oriented, event-driven language that is a subset of the Visual Studio.NET environment. It is designed to provide programmers familiar with the basic concepts and functionality of Visual Basic.NET with the tools to create more robust application programs. Prerequisite: SOFT 205

SOFT 207 Dynamic Web Pages 5

Students design and implement an interactive, data-driven Website using C# and ASP.net. Topics include objects and inheritance; debugging and error handling; managing state and a database server and users; security; and best practices. Prerequisite: SOFT 122

SOFT 208 Principles of System Analysis and Design 5

This course examines the spectrum of requirements for the design, planning, and implementation of computer systems. Through case studies, students will analyze existing situations in order to propose new systems solutions

SOFT 209 Emerging Technologies 5

This course offers students an opportunity to independently research a technology that is determined by both the instructor and the student. Students will use the acquired skills to create a project or presentation.

SOFT 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

SOFT 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

SOFT 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

SOFT 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

SOFT 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

SOFT 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

SOFT 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

VEHICLE PARTS/ACCESSORIES MARKETING

VPM 101 Applied Math 4

This course is an introduction to mathematical theory and its application to the vehicle parts marketing. Topics include an overview of general mathematical concepts and how they are successfully utilized in practical situations.

VPM 102 Safety Principles 3

This course is an introduction to the safety practices and procedures common to the vehicle parts marketing industry.

VPM 103 Environmental Protection 1

Fundamentals of environmental protection guidelines within warehousing and distribution are emphasized.

VPM 104 Introduction to Vehicle Parts Merchandising 3

This course is an introduction to the vehicle parts merchandising industry including automotive systems and parts and the relationship between the two. Customer service and its importance to the industry is also included.

VPM 105 Forklift Operation 1

Students learn to operate forklifts in a safe and professional manner. Important aspects of life truck operation including safety considerations and center of balance guidelines are emphasized.

CREDITS

	CREDITS
VPM 106 Material Movement	2
Students learn to move or transport material/stock and pallets using hand trucks and hand-powered hydraulic lifts.	
VPM 107 Storage and Distribution	5
Students learn to locate, sort, place, and stack materials in a storage facility.	
VPM 108 Shipping and Receiving	5
Warehousing documentation methods, including receiving documentation, overage, shortage, or damage are included.	
VPM 110 Principles of Inventory Control	5
This course is an introduction to the principles of inventory control including fittings, valves, accessories, tubing and piping, sizing, and their application.	
VPM 111 Stock Merchandising	5
Students learn how the storage facility supports the retail or wholesale environment. The completion of warehouse forms, pulling stock, and pricing and building displays is also included.	
VPM 112 Stock/Product Order	4
Students learn to research product sources, analyze and select appropriate vendors, and order appropriate stock based on research.	
VPM 113 Automotive Parts Systems	5
This course presents the various inventory control systems that are commonly used in automotive parts departments and stores. Determining inventory levels is an integral part of this course.	
VPM 114 Product Research Systems	5
Students learn to use a variety of automotive parts catalogs, pricing sheets, and parts systems research techniques.	
VPM 115 Principles of Salesmanship	5
This course is an introduction to basic principles of salesmanship including the development of customer service skills, product knowledge, and related products for customer consideration.	
VPM 116 Retail Point of Sale	3
Retail point of sale systems, how to complete sale transactions, and how to accept all types of monetary payment are emphasized.	
VPM 117 Returns, Exchanges, and POs	4
Students learn to handle merchandise being returned for refund, "core" returns, warranty returns, and defective merchandise.	
VPM 119 Principles of Management	5
This course is an introduction to the principles of management with emphasis on the skills required of supervisory personnel within the vehicle parts sales environment.	
VPM 120 Employment Preparation	3
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.	

	CREDITS
VPM 121 Retail Applications	3
Students apply skills learned during activities of a retail parts distribution facility when interfacing customers and vendors.	
VPM 122 Warehouse Applications	3
Students apply skills learned during activities of a warehouse distribution facility where products are stored and distributed.	
VPM 295 Work-based Learning Experience	5
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
VPM 296 Work-based Learning Experience	2
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
VPM 297 Work-based Learning Seminar	1
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.	
VPM 298 Work-based Learning – No Seminar	3
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	
VPM 299 Work-based Learning – No Seminar	6
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	
WEB DEVELOPMENT	
WEB 101 Microsoft Office Applications	5
This course focuses on developing essential skills using Word, Excel, PowerPoint, and Outlook. Topics include creating and editing Word documents, and an introduction to Excel worksheets, charts, formulas and basic functions. PowerPoint focuses on enhancing presentations with illustrations and shapes. Outlook introduces essential E-mail and contact management skills. Prerequisite: Keyboarding.	

	CREDITS
WEB 102 HTML, XHTML and CSS	5
Using a text editor, this course builds a strong foundation in HTML, XHTML, and Cascading Style Sheets (CSS) so students can migrate to HTML editors. Students write code integrating CSS right from the start to reinforce concepts and skills learned. Prerequisite: Keyboarding.	
WEB 103 Operating Systems	5
This course is designed to introduce the student to an operating system environment. Instruction includes installation and configuration; learn your way around the desktop, as well as building skills using commands.	
WEB 201 Internet Technologies	5
From browsing and searching to the latest in emerging Web technologies, this course covers essential to comprehensive topics understanding and using the Internet. Discover the technical concepts and services that make the Internet work. Current Internet trends are identified and discussed in this course. Prerequisite: Computer Concepts.	
WEB 202 Web Authoring Editor	5
This course focuses on how to design and maintain Web Pages using an industry-standard Web editor. Students practice setup of site configuration, creating and editing web pages using tables, forms, templates, Cascading Style Sheets (CSS), positioning, and media objects. Prerequisite: HTML, XHTML and CSS.	
WEB 203 Photoshop for the Web	5
Students practice how to edit, manipulate, enhance, and optimize digital images using industry-standard software. Skills covered include selection techniques, working with layers, drawing and painting, enhancing photos, applying filters, creating actions, drawing vector graphics, and creating web pages and animations.	
WEB 204 Web Site Animation using Flash	5
Students practice hands-on using Flash's drawing, image, text, animation and sound capabilities and build interactive content that can be shared over the Internet. Students will create a Flash web site, integrate Flash components and use basic ActionScript. Prerequisite: Photoshop.	
WEB 205 Web Site Design	5
This course focuses on Web page planning, basic design, layout and construction of a Web site. Theories related to visual communication and design of online material will be discussed. Prerequisite: Web Authoring Editor, Photoshop for the Web and Site Animation using Flash.	
WEB 206 Technology Topic	5
This course offers students an opportunity to independently research a technology that is determined by both the instructor and the student. Students will use the acquired skills to create a project or presentation.	

CREDITS

WEB 290 Capstone Project	5
This course offers students an opportunity to work on a project researching and applying skills and technologies learned. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
WEB 291 Practical Applications	1-18
This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
WEB 292 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
WEB 293 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
WEB 294 Independent Projects	1-5
This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.	
WEB 296 Work-based Learning Experience	1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.	
WEB 297 Work-based Learning Seminar	1-2
Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meets with the students to provide support and assistance during the experience.	
WEB 298 Work-based Learning – No Seminar	1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.	

WELDING

WELD 101 Safety Principles	2
This course is an introduction to the safety practices and procedures common to the welding industry	

CREDITS

WELD 102 Fabrication Plans	4
Students learn to read, interpret and create graphic drawings to complete welding projects.	
WELD 103 Pre and Post-welding Activities	2
This course is an introduction to the tools, equipment, and materials used in the layout and fabrication of welding projects.	
WELD 104 Oxy/acetylene Cutting	3
This course is an introduction to the use of oxy/acetylene welding and cutting equipment.	
WELD 105 Introduction to Shielded Metal Arc Welding (SMAW)	5
This course is an introduction to the SMAW process with emphasis safety and theory. This class is the beginning in developing eye - hand coordination using fast fill SMAW electrodes on different groove designs and weld positions.	
WELD 106 Welding Math	5
Students learn and apply various math concepts to solve problems common to the welding industry. Applications include project estimates including both material and labor costs and layout and fabrication operations. Applied functions range from English/metric conversions to area and volume calculations.	
WELD 107 Torch Brazing and Soldering	1
Students learn to perform brazing and soldering techniques with emphasis on the changes in the process encountered at various temperatures.	
WELD 108 Full Penetration Welds – Flat/Horizontal	5
This course is an extension of weld 107, using more advanced welding techniques in the flat and horizontal positions.	
WELD 109 Full Penetration Welds – Vertical/Overhead	5
This course is an extension of weld 107, using more advanced welding techniques in the vertical and overhead positions.	
WELD 110 Full Penetration Welds – Open Root	5
This course is an advanced SMAW class using fast freeze electrodes in preparation for pipe welding.	
WELD 111 Introduction to Gas Metal Arc Welding (GMAW)	3
Students receive instruction on the GMAW process learning theory, safety, and equipment set up.	
WELD 112 Gas Metal Arc Welding – Full Penetration	5
In this course the students learn the hands-on application of the different transfer modes of GMAW on mild steel in all positions.	

CREDITS

WELD 113 Gas Metal Arc Welding – Aluminum	5
In this course the students learn the hands-on application of the different transfer modes of GMAW on aluminum in all positions.	
WELD 114 Introduction to Flux Core Arc Welding (FCAW)	5
Students receive instruction on the FCAW process learning theory, safety and equipment set up.	
WELD 115 Flux Core Arc Welding – Full Penetration	5
Students learn the hands-on application skill of FCAW in all positions, on mild steel.	
WELD 116 Carbon Arc Cutting (CAC) and Plasma Arc Cutting (PAC)	5
Students learn how to safely use plasma arc and carbon arc cutting techniques.	
WELD 201 Introduction to Gas Tungsten Arc Welding (GTAW)	5
This course is an introduction to the gas tungsten arc GTAW welding process. Topics include correct selection of tungsten, polarity, gas, and proper filler rod with emphasis placed on safety, equipment setup, and welding techniques.	
WELD 202 Gas Tungsten Arc Welding – Full Penetration	5
Students receive instruction on the GTAW process performing fillet and groove welds with various electrodes and filler materials on steel and stainless steel.	
WELD 203 Gas Tungsten Arc Welding – Aluminum	5
Students learn to perform GTAW fillet and groove welds on aluminum.	
WELD 204 Welding Certification Testing – (SMAW)	5
This course gives the student certification testing time in SMAW.	
WELD 205 Advanced Welding Applications – Pipe/SMAW	5
This course covers the knowledge and skills that apply to welding pipe. Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead application, profile, and weld discontinuities. Students learn to perform SMAW welds to applicable codes on carbon steel pipe with prescribed electrodes in various positions.	
WELD 206 Advanced Welding Applications – Pipe/GTAW	5
This course is designed to enhance skills with the GTAW welding process. Topics include setup, joint preparation, and electrode selection with an emphasis on manipulative skills in all welding positions on pipe.	

CREDITS

WELD 207 Welding Certification Testing – (FCAW) 5

This course gives the student certification testing time in (FCAW

WELD 208 Non-Destructive Testing (NDT) 1

This course is an introduction to non-destructive testing methods used to detect discontinuities to help assure standards of quality in welding. Emphasis is placed on safety, types and methods of testing, and the use of testing equipment and materials.

WELD 209 Forklift Training 1

Students learn to operate forklifts in a safe and professional manner. Important aspects of Forklift operation including safety considerations and center of balance guidelines are emphasized.

WELD 210 Advanced Welding Applications – Project 5

This course offers the student the opportunity to use the knowledge and skills learned in class and apply them to actual projects or in the work based learning program with no lecture.

WELD 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WELD 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WELD 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WELD 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WELD 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

CREDITS

WELD 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

WELD 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

WIRELESS VOICE & DATA COMMUNICATIONS**WIRE 201 Telecommunications Network Cabling Systems 5**

This course provides students with the skills necessary to take and pass industry certification exam for Network Cabling Specialist. Students train in termination, testing and troubleshooting copper based network to include twisted pair and coaxial cabling systems. Instruction includes lecture and lab on various pin, jack and termination block configurations. All construction and testing will conform to industry standards and specifications.

WIRE 202 Fiber Optics 5

Applications of fiber optics, including telecommunications, CATV and computer networks, focusing on the technology, the components and their installation are covered in this course. Students utilize fiber specific equipment to learn and apply the fiber technology and perform fiber termination and testing.

WIRE 203 FCC Licensure Prep I 5

Students prepare for Element 1 of the General Radiotelephone Operator License as issued through the Federal Communications Commission. Element 1 exam consists primarily of basic radio law and operating practices questions. Students who pass Element 1 will receive their Marine Radio Operators Permit.

WIRE 204 FCC Licensure Prep II 5

Students prepare for Element 3 of the General Radiotelephone Operators License as issued through the Federal Communications Commission. This exam consists of radio, electronic circuits, signals and emissions questions. Students who pass Elements 1 and 3 will receive the GROL License. Students must have knowledge in electronics and electronic communications as a prerequisite to the class.

CREDITS

WIRE 205 Wireless/RF Communications 4

This course provides overview of wireless applications, advantages and disadvantages of wireless systems. Introduction to wireless data transmission techniques and standards overview. Simplified, but in-depth look at antennas and their role in successful implementation of a wireless data communications system.

WIRE 206 Wireless Personal Area Networks 2

Personal, short distance area wireless networks for interconnecting devices centered around a workspace or home is explored. WPANs address wireless networking and mobile computing devices such as PC's, PDA's, peripherals, cell phones, pagers and consumer electronics. Short range wireless data communications technologies including, infrared, Bluetooth, and ZigBee, RFid, WiMedia and Ultra wide band are introduced.

WIRE 207 Wireless Local Area Networks 3

This course examines the fundamentals of various 802.11 wireless standards including frequency bands, bandwidth, data rate, and applications. Topics include WLAN components such as NICs, access points, standards, operations and modulation technologies used to enable communication between devices in a limited area.

WIRE 208 Wireless Broadband Networks 4

The fundamentals of medium and long range wireless communications from infrared free-space optics to WiMax, cellular and satellite technologies are covered in this class. Additional technologies studied include local multipoint and multichannel multipoint distribution services used in high speed Internet access, multimedia file transfer, remote access to local area networks and telephone services.

WIRE 210 Introduction to RF Communications 2

Students are introduced to wireless RF communications concepts such as radio wave propagation, wavelength, frequency, bandwidth, and signal analysis.

WIRE 211 Amplitude Modulation 3

Amplitude modulation principles are introduced to RF communications systems. Studies focus on fundamentals of AM transmitters and receivers including measurements with oscilloscope and spectrum analyzer.

WIRE 212 Single Sideband and Frequency Modulation 4

Single sideband and frequency modulation principles are introduced to RF communications systems. Studies include principles of modulation, demodulation, transmitters and receivers.

CREDITS

WIRE 213 Transmission Lines and Antennas 2
No communications system is complete without a media to transmit information. Types of transmission lines discussed are twisted pair, coaxial, ladder line, and waveguides. Curriculum includes principles of electromagnetic propagation, antenna theory, RF radiation and safety.

WIRE 214 Microwave, Telephony, and Cellular 2

This course focus is on microwave, radar communications systems, circuits and transmission methods. Students learn how land line telephone and cell phone systems work. Additional wireless telephony operations to include AMPS, PCS, CDMA, GSM and TDMA.

WIRE 215 Data and Networking Fundamentals 2

Studies include basics of data communications and networking fundamentals and topologies, networking hardware and media, LAN's, MAN's and WANs, the seven-layer OSI model and its application, Internet protocol (IP) and MAC addressing concepts, and additional protocols such as TCP, UDP, DHCP and ARP.

WIRE 216 Advanced Communications Principles 2

Communications technologies change and advance to meet the desires of an information hungry society. Technologies such as global positioning systems (GPS), fiber optic and laser technology are just some of the methods used to deliver information such as data, video and more which are introduced in this course.

WIRE 236 RF Communications Lab 5

Students work with amplitude and frequency modulation transceivers, performing alignments, tests and measurements, with a focus on troubleshooting. Students learn about transceivers, while interfacing with communication equipment such as signal generators, frequency counters, oscilloscopes, and communication systems analyzers.

WIRE 237 Telecommunications Lab 5

This course includes a comprehensive computer interactive training system with complete courseware, supported by lab and experimentation. Lessons include advanced modulation and signal processing techniques such as pulse code modulation, frequency and phase shift keying, and multiplexing schemes such as time and frequency division multiplexing. Students train on microwave communication systems and set up wireless transmit/receive links. In addition, students acquire the skills needed to understand basic telephone, telecommunications and fiber optic systems.

CREDITS

WIRE 249 Job Search and Preparation 3
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

WIRE 291 Practical Applications 1-18

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WIRE 292 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WIRE 293 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WIRE 294 Independent Projects 1-5

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WIRE 296 Work-based Learning Experience 1-18

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

WIRE 297 Work-based Learning Seminar 1-2

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

WIRE 298 Work-based Learning – No Seminar 1-18

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

Adult Basic Education (ABE) Course Descriptions

CREDITS

For adults seeking to improve skills in reading, writing and math. Prepares students for more advanced courses, to improve COMPASS scores, GED testing, and workplace and life situations.

AIPS 081 Applied Integrated Problem Solving
An integrated basic studies and career training course for students with CASAS read/math scores above 235. Students are concurrently enrolled in workforce training programs and address foundational computations and communications skills in the context of the workplace competencies being addressed in their program. Instruction takes place in both classroom and career training laboratory environments. Students transition to developmental general education courses in math and English when ready.

ABE 050 Beginning Basic Education
ABE Level 2 course designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills and, at intake, score 201-210 on a CASAS test.

ABE 060 Low Intermediate Basic Education
ABE Level 3 course designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills and, at intake, score 211-220 on a CASAS test.

ABE 070 High Intermediate Basic Education
ABE Level 4 course designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills and, at intake, score 221-235 on a CASAS test.

BSEP 045 Basic Studies Educational Planning
Educational planning provides assessment testing and counseling to enable students to select the most appropriate future classes for their goals and skill levels. This course is required prior to beginning a career training program for students whose COMPASS scores reflect a need to improve basic skills in math, reading, writing or ESL. Students are scheduled for BSEP by the appropriate student services career specialist for their program of interest. Free Course. No text or testing fees. Two 3-hour sessions. Start dates by arrangement.

ENGL 050 Writing Development III
Writing simple narrative descriptions and short essays on familiar topics such as customs in native country, has consistent use of basic punctuation, but makes grammatical errors with complex structures. Core Competency Level 3.

ENGL 070 High Intermediate Basic Writing
ABE Level 4 course designed to teach writing skills to individuals who have a goal to improve basic skills and, at intake, score 221-235 on a CASAS test.

ENGL 080 GED Writing
Basic GED preparation writing course for students with a goal of earning the General Educational Development (GED) equivalency certificate who, at intake, score 236 or higher on a CASAS test.

ESL 057 Low Beginning ESL Listening and Speaking
ESL Level 2 courses in listening and speaking for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 181-190 on a CASAS test.

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CREDITS

ESL 058 Low Beginning ESL Reading and Writing
ESL Level 2 course in reading, and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 181-190 on a CASAS test.

ESL 067 High Beginning ESL Listening and Speaking
ESL Level 3 course in listening and speaking for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 191-200 on a CASAS test.

ESL 068 High Beginning ESL Reading and Writing
ESL Level 3 course in reading and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 191-200 on a CASAS test.

ESL 077 Low Intermediate ESL Listening and Speaking
ESL Level 4 course in listening and speaking for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 201-210 on a CASAS test.

ESL 078 Low Intermediate ESL Reading and Writing
ESL Level 4 course in reading and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 201-210 on a CASAS test.

ESL 081 ESL - Success Strategies
Students learn applied techniques for increasing personal effectiveness and productivity through goal setting, self-reflection, self-evaluation, and positive interactions. This course provides a basis for success in the community and workplace environments by incorporating cultural awareness and adjustment skills.

ESL 087 High Intermediate ESL Listening and Speaking
ESL Level 5 course in listening and speaking for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 211-220 on a CASAS test.

ESL 088 High Intermediate ESL Reading and Writing
ESL Level 5 course in reading and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 211-220 on a CASAS test.

ESL 089 Low Advanced ESL
ESL Level 6 course in listening, speaking, reading, and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 221-235 on a CASAS test.

GED 080 GED Test Preparation
Basic GED preparation course for students with a goal of earning the General Educational Development (GED) equivalency certificate who, at intake, score 236 or higher on a CASAS test.

MATH 060 Low Intermediate Basic Math
ABE Level 3 course designed to teach computational skills to individuals who have a goal to improve basic skills and, at intake, score 211-220 on a CASAS test.

CREDITS

MATH 070 High Intermediate Basic Math
ABE Level 4 course designed to teach computational skills to individuals who have a goal to improve basic skills and, at intake, score 221-235 on a CASAS test.

MATH 080 GED Math Preparation
Basic GED preparation math course for students with a goal of earning the General Educational Development (GED) equivalency certificate who, at intake, score 236 or higher on a CASAS test.

MATH 086 Pre-Algebra I
Basic mathematical and computational concepts for students with a vocational education goal who, at intake, score 236-244 on a CASAS test. Text: Martin-Gay, PreAlgebra, 5th Edition

MATH 087 Pre-Algebra II
Basic mathematical and computational concepts for students with a vocational education goal who at intake score 245 or higher on a CASAS test. Text: Martin-Gay, PreAlgebra, 5th Edition

READ 050 Beginning Basic Education Reading
ABE Level 2 course designed to teach reading to individuals who have a goal to improve basic skills and, at intake, score 201-210 on a CASAS test.

READ 060 Low intermediate Basic Reading
ABE Level 3 course designed to teach reading to individuals who have a goal to improve basic skills and, at intake, score 211-220 on a CASAS test

READ 070 High intermediate Basic Reading
ABE Level 4 reading course designed to teach reading to individuals who have a goal to improve basic skills and, at intake, score 221-235 on a CASAS test.

READ 080 GED Reading
Basic GED preparation reading course for students with a goal of earning the General Educational Development (GED) equivalency certificate who, at intake, score 236 or higher on a CASAS test.

READ 089 Preparation for College Reading
Reading skills courses for students with a vocational education goal who, at intake, score 236 or higher on a CASAS test. Text required.

Adult Basic Education/ABE

Adult basic education (ABE) classes help students who may or may not have a high school diploma, improve mathematics, reading and writing skills. Students enroll in adult basic education to prepare for further general education courses, to complement career education, to prepare for General Education Development (GED) testing, and for personal improvement. Students take assessment tests and are then placed in appropriate classes for their skill level and personal educational goals. (See page 14.)

Adult High School Completion Course Descriptions

* CU = Carnegie Units

CREDITS

ART

ART 091 Appreciation Public Art .5cu*
Understanding and appreciating public art, past and present. Students trace the heritage of the public art form from cave paintings to modern works in Tacoma. Students address the ideas behind public art and the issues around the vision for public art and the governmental processes by which it is designed, approved and installed.

Art 092 History of Modern Art .5cu
The study of the history of the development of modern art, beginning with the 19th Century and concluding with an emphasis on contemporary art and architecture. Students critically examine and assess the esthetics of art styles and ideologies.

ART 093 Performance Art .5cu
Students demonstrate thinking skills during the process to develop and perform an artistic work(s) for others.

ART 095 Visual Arts Portfolio .5cu
Students demonstrate the ability to apply arts concepts through creation of a visual arts portfolio in one or more arts genre.

Art 097 Three Dimensional Design .5cu
Students focus on gaining skills to create 3-dimensional works of art. Students design and construct projects exploring linear, planar, and solid forms through the use of wire, cardboard, wood, and wax.

ENGLISH

ENGH 073 Writing Development IV .5cu
Composing connected paragraphs using correct punctuation, capitalization, usage, spelling, and complex sentence structures. Using computer technology for composition, editing and proofreading.

ENGH 093 Senior Culminating Project .5cu
Students attend a series of workshops and complete either a technical or community service project, work with a mentor in school or in the community, develop a personal portfolio of work, write a paper reflecting on their learning and present a multi-media presentation to a community or peer panel.

ENGH 096 American Literature & Composition .5cu
The study of a variety of American Literature short stories and novels. Students examine the elements of theme, plot, character, setting, point of view, and tone and use a computer to complete online reading and writing assignments.

CREDITS

READ 073 Reading Development IV .5cu
Evaluating, comprehending and making inferences from a variety of reading materials including textbooks, technical manuals and works of fiction. High school student placement is after the completion of Basic Studies Educational Planning (BSEP).

HEALTH

HLTH 091 Nutrition and Fitness I .5cu
Nutrition and fitness play a crucial role in maintaining a healthy lifestyle. Study the fundamentals and roles of nutrition and participation in fitness activities. (13 hours lecture; 37 hours lab) Instructor will specify schedule of required lectures.

HLTH 093 Fitness II .5cu
Learn the importance of establishing individualized fitness goals and safety through classroom presentations and participation in fitness activities. (5 hours lecture; 45 hours lab) Instructor will specify schedule of required lectures.

HLTH 095 Health I .5cu
Acquire knowledge and skills necessary to maintain a healthy life and evaluate the impact of real-life influences on health.

HISTORY/SOCIAL STUDIES

GEOG 093 World Geography .5cu
Survey of world geography and its interrelationship with specific areas. Classes are presented in seminar format with lecture and discussion. Students conduct library research to complete an individual research project relating to the world's physical and political geography.

GLOB 095 Current Global Issues .5cu
The study of world history, geography and current events, intertwined to show links between past and present with particular attention to current events.

GOVT 095 Civics .5cu
A study on how local, state and federal governments work. Extensive study of the U.S. Constitution. The development of the nation from colonization through the Civil War. Explores the American Revolution, formation of the U.S. Constitution, consolidation of the states, early economic growth, slavery, westward expansion and other causes of the Civil War.

HIST 092 US History II .5cu
A study of the development of the United States from Reconstruction through present times. Covers the industrial era, Indian affairs, populism, progressivism, various wars, civil rights, the Cold War and its end.

CREDITS

HIST 096 Washington State History .5cu
HIST 096OL Washington State History (Online)
History of the Pacific Northwest, with emphasis on the political and economic development of Washington State.

SOC 095 Current Social Issues Through the Media .5cu
A study of various social issue themes as presented through cinema. Students will view a series of films that pertain to a particular genre and then analyze the symbolism, historical relevance and popular appeal of each work. Students will be required to make informed critiques of the works.

MATHEMATICS

MTHH 073 Math Fundamentals .5cu
Using fractions, decimals, percents, ratios and proportions with life skill application. Combines group instruction with independent assignments. Placement is after completion of Basic Studies Educational Planning (BSEP).

MTHH 074 Integrated Math .5cu
Preparation for 90-level MATH classes. Reviews fractions, decimals, percents, and ratios/proportions. Introduction to order of operations, sign numbers, geometry, and math terminology. Group projects with individual assignments. Placement is after completion of BSEP or MTHH 073.

SCIENCE

HSCI 091 Human Life Processes .5cu
Applied biology and chemistry focusing on the life processes of human beings. Includes structure and movement, nutrients and digestion, circulation, respiration and excretion, control and coordination, regulation and reproduction, and immunity and disease. Requires use of a microscope and scientific calculator.

SCI 093 Continuity of Life .5cu
Analyze and evaluate the influence of science upon man and technology, focusing on plant and animal cells, reproduction, genetic inheritance, genetic engineering, and biotechnology and how these concepts apply to occupational and social problem solving. Students conduct library and online research to complete projects relating course material to the student's occupational area of interest.

SCI 094 Introduction to Physics .5cu
Application of physics in everyday life with emphasis on the conceptual understanding of the underlying principles of motion, friction, gravity, energy, fluids, electricity, and magnetic fields.

General Education (Academics) Course Descriptions

CREDITS

SCI 095 Plant Growth and Reproduction .5cu

Lab science that includes the study of plant physiology, reproduction, care and treatment, and uses of plants as food and products. Includes the study of current occupational uses of plants and social issues related to controlling plant growth.

SCI 096 Water .5cu

The study of water as a compound and as an essential for all life forms. Group seminars are combined with labs. Acid and base solutions and water quality will be studied. Issues related to water rights and responsibilities will be discussed. In addition to group seminars, students will be expected to conduct library and on-line research and complete projects that relate this course material to the student's occupational area of interest.

SCI 097 Micro-organisms .5cu

Analyze and evaluate the influence of science upon man and technology with focus on the study of fungi, protists, bacteria, and viruses. Students explore the roles microorganisms play in daily life. Current issues related to biotechnology and genetic manipulation will be discussed. In addition to group seminars, students are expected to conduct library and on-line research to complete projects that relate course material to the student's occupational area of interest.

SCI 098 Atmospheric Science .5cu

The application of the science of meteorology for commercial and industrial uses, including meteorological codes used in weather observing and forecasting; types and applications of weather satellite pictures; impact of severe weather (floods, high winds, tornadoes, hurricanes, etc.) on life and the economy; presentation of weather for the media; types and formations of clouds; interpretation of weather radar data; analysis of weather charts; and a practical weather forecasting lab. Elements of the sciences of geography, oceanography, topography, and climatology will be incorporated.

ART**ART& 100 Art Appreciation (WAOL) 5**

Prerequisite: ENGL 091

Introduction to the diversity of the art world from ancient civilizations to contemporary society. Art terminology and methods are covered in an overview of artists' materials and techniques. Virtual online access available one week prior to the class start date.

BIOLOGY**BIOL 170 Medical Terminology – Basic 1**

Prerequisite: ENGL 091

This course teaches students the basic design of medical terminology and provides a foundation of knowledge for the language of medicine used in allied health fields.

CREDITS

BIOL 171 Human Anatomy and Physiology 4

In depth study of human body systems emphasizing the relationship between structure and functions as an introductory course for students beginning study in health sciences and related fields. Includes laboratory activities.

BIOL 171L Human Anatomy and Physiology Lab 1

Co-requisite: BIOL 171

Laboratory activities to in this course reinforce understanding of human body systems emphasizing the relationship between structure and functions. Instruction is coordinated with BIOL 171 Human Anatomy and Physiology.

BIOL& 222 Molecular, Cellular and Developmental Biology 5

Prerequisite: MATH 098 and co-enrollment in Biomedical Laboratory Tech courses cell structure and function, biological molecules, cellular organelles, metabolism, genetics and embryonic development. Emphasis is placed on using the scientific method and proper experimental design. Includes laboratory activities.

BIOL& 260 Microbiology 5

Prerequisite: MATH 098 and Co-enrollment in Biomedical Laboratory Tech courses Study of microbe structure and classification, organelle function, cellular processes and biochemical reactions, culture requirements and use by humans. In the lab, students learn proper aseptic technique, maintenance of stock bacterial cultures, staining techniques and the use of biochemical tests to identify bacterial unknowns

BUSINESS**BA 217 Business Communications (WAOL) 5**

Prerequisite: ENGL 091

Basic writing skills for business applications including grammar, punctuation, spelling and vocabulary with emphasis on business terminology and usage. Practice skills by writing e-mails, memoranda, various kinds of business letters, and a to-file report. Virtual online access available one week prior to the class start date.

CREDITS

CHEMISTRY**CHEM& 110 Chemical concepts w/Lab 5**

An introduction to the fundamental principles of chemistry and the predictive power chemistry provides. Topics include elements, compounds, and mixtures; periodic properties of the elements; atomic theory and structure; molecular structure and chemical bonding; chemical notation and nomenclature; mass and molar relations; chemical reactions and the mass and energy changes accompanying them; simple thermodynamics; equilibrium, equilibrium constants and kinetics; properties of gases, liquids, solids, and solutions; properties of acids, bases, and pH; connections between chemistry and daily life. (This course is generally transferable and meets general education requirements for a laboratory science course in an AAS-T degree. (This is an adopted WAOL shared course; start date will be determined by WAOL which may be different than the start of the Bates quarter.)

CHEM& 141 Introduction to Chemistry 5

Prerequisite: MATH 098

This course covers the fundamental concepts of inorganic chemistry; principles of atomic and molecular structure, ionic and covalent bonds, chemical reactions, acid/base chemistry, oxidation and reduction reactions, and gas laws.

COMMUNICATIONS**ASL& 121 American Sign Language I 5**

An interactive telecourse with VHS tapes exchanged between instructor and student. Includes a brief history of ASL, its development, grammatical principles, and vocabulary rules. Vocabulary, finger spelling and sentence structure are developed.

CMST& 210 Interpersonal Communications 5

Prerequisite: ENGL 091

Explores human relations including interpersonal communication effectiveness, giving and receiving criticism non-defensively, building empathy, listening effectively, improving nonverbal awareness, and interviewing successfully.

CMST& 220 Public Speaking 5

Prerequisite: ENGL 091

Introduction to the rhetoric of speech and the preparation and delivery of speech in an extemporaneous style, including ethical research methods, basic rhetoric and critical analysis, and organization of various types of presentations. Two to four speaking assignments are required, plus regular quizzes, peer review, and written examination. Online resources will be integrated.

General Education Course Descriptions

QTS = Qualifying Test Scores

	CREDITS
CMST& 230 Small Group Communications	5
Prerequisite: ENGL 091	
Explores human relations including team leadership, conflict management, team dynamics, decision-making, problem solving, and assertiveness strategies. Apply concepts by working in a variety of self-directed problem-solving groups.	
ENGLISH	
EIS 081 Intensive Grammar I/S	5
For intermediate students of English as a second or foreign language with an emphasis on practical usage and application to prepare students for further developmental general education courses.	
EIS 083 Intensive Reading & Writing for International Students	5
An intermediate ESL expository written communication course emphasizing critical thought, reflective reading, and information literacy, with attention to grammar and conventions of standard American English.	
EIS 085 Intensive Oral/Aural Skills for International Students	5
Oral and aural abilities emphasizing peer review discussions, notetaking, lecture comprehension and presentation skills to prepare students for further career education or developmental general education courses.	
EIS 091 Grammar International Students	5
Prerequisite: EIS 081	
For advanced students of English as a second or foreign language with an emphasis on practical usage and application.	
EIS 093 Reading and Writing for International Students	5
Prerequisite: EIS 083	
An expository written communication course emphasizing critical thought, reflective reading, and information literacy, with attention to grammar and conventions of standard American English.	
EIS 095 Oral/Aural for International Students	5
Prerequisite: EIS 085	
Oral and aural abilities designed to prepare students for college-level English courses emphasizing peer review discussions, notetaking, lecture comprehension and presentation skills.	
ENGL 090 Writing for College	5
Prerequisite: QTS	
Critical thinking and composition skills; writing connected paragraphs using correct punctuation, capitalization, usage, spelling, and complex sentence structures.	

	CREDITS
ENGL 091 Integrated Reading & Writing II	5
Prerequisite: ENGL 090	
Competency-based communications course to prepare students for college-level general education. Refinement of reading and critical thinking abilities and development of writing skills for specific purposes and audiences.	
ENGL 099 Workplace Communications	5
Prerequisite: AIPS 081 or ENGL 089	
Reading, writing and research assignments pertaining to career education program workplace issues. Students use reading and research skills and complete oral and written communications competency. Sections of this course may be restricted to students in a specific cluster of career education programs. This course satisfies the general education communications requirement for a certificate of competency.	
ENGL& 101 English Composition I	5
Prerequisite: ENGL 091	
An expository written communication course emphasizing critical thought, reflective reading, and information literacy, with attention to rules and conventions of standard American English.	
ENGL& 235 Technical Writing	5
Prerequisite: ENGL& 101	
Advanced written communication for technical and business purposes based on higher level researching of technical information, organizing data, and writing abstracts, studies and detailed business communications. Requires a formal report using prescribed guidelines, including front and back matter.	
HISTORY	
HIST 101 History of Science and Technology	5
Prerequisite: ENGL 089	
Traces the development of western science technology, examines the roles of philosophers, the church, universities, and scientists. Students become aware of the emergence and expanded role of knowledge seeking that occurred as civilizations expanded and became more complex. Focus is on the contributions of common artisans and craftsmen/women whose activities led to important discoveries that became the basis for numerous scientific theories and technological advancements.	
HUMAN RELATIONS	
HREL 093 Success Strategies - ELL	5
Applied techniques for increasing personal effectiveness and productivity through goal setting, self-reflection, and positive interactions. Provides a basis for success in educational and workplace environments by incorporating cultural awareness and adjustment skills. Credits may be applied toward meeting certificate of competency human relations requirements.	

	CREDITS
HREL 111 Emp. Interviewing/ Self Promotion	5
Prerequisite: ENGL 089	
Students are introduced to the principles of communication in the context of successfully interviewing for a job, learning self-promotion with effective reasoning and evidence, to prepare for interviews, to maximize a positive impression through nonverbal communication, the value of building personal credibility, and how to leave a lasting positive impression. Students practice learned skills by participating in interview situations where their performance is critiqued by classmates and the instructor.	

MATHEMATICS

MATH 090 Math for Transportation Maintenance Professionals (Automotive Mechanic)	5
Fundamental computational skills required for transportation maintenance career education programs. Includes basic math operations, conversion of American and metric linear, weight and volume measures, basic geometric shapes and formulas, operations with fractions and decimals, and application of ratio and proportion in solving computational problems.	
MATH 092 Elementary Algebra	5
Prerequisites: Math 087 or QTS	
Review of numerical relationship; introduction to elementary algebra concepts, including real numbers, exponents, the order of operations, algebraic expressions, solving algebraic equations, formulas, problem solving, graphing linear equations, rates of change, slopes of lines, functions, scientific notation, and polynomial functions.	
MATH 093 Business Math I	5
Prerequisites: MATH 087 or QTS	
Basic business math topics: bank records, payroll, taxes, statistical tables and graphs, simple interest and discount, consumer credit, formulas and equations.	

General Education Courses

General education (academic) courses are designed to provide competence in a variety of learning areas related to career education, and to ensure that all students have a broad, basic education. Areas of study include human relations/leadership, communications and mathematics.

General education courses are required as part of degree and certificate achievement, and are necessary for pursuit of higher-level degrees. (See page 12.)

QTS = Qualifying Test Scores**CREDITS**

MATH 094 Merchandising Math 5
Prerequisites: CASAS Math Score of 240 or concurrent enrollment in AIPS 081; or enrollment in the career training program identified for the specific section of this course. Students learn applied computational skills related to the documentation and conduct of business activities in specific occupations. Focus is on the computational relationships within business forms, daily transactions, and records and the mathematical foundations required to understand and use them. This course is taught in an integrated format within select career training environments.

MATH 095 Geometry I 5
Prerequisites: Completion of Algebra in high school; completion of, MATH 092 (Elementary Algebra) with a grade of 2.0 or higher; or a COMPASS Algebra score of 30.

MATH 096 Business Math II 5
Prerequisite: MATH 093 or QTS
Advanced business math topics: compound interest, future and present value, annuities and sinking funds, consumer credit, depreciation, inventory and overhead, financial statements, insurance premiums, taxes, stocks and bonds, and a review of algebra.

MATH 098 Intermediate Algebra 5
Prerequisite: MATH 092 or QTS
Variables, equations, formulas, algebraic expressions, polynomials, exponents, roots, factoring, quadratic equations, algebraic fractions, graphing of linear and quadratic equations, problem solving, and practical exercises using the scientific calculator.

MATH& 141 Pre-calculus I 5
Prerequisite: MATH 098 or QTS
Functions, function operations, rational, polynomial, exponential, logarithmic and linear functions and equation solving, function graphs, matrices and determinants, sequences and series.

MATH& 142 EH Pre-calculus II 5
Prerequisite: MATH 098 or QTS
Right and oblique triangle trigonometry, circular functions, graphs of trigonometric functions, identities, inverse trig functions, vectors and polar coordinates, and parametric equations. TI83 Graphing Calculator required.

MATH& 146 Intro to Stats 5
Prerequisites: MATH 098 or MATH 174 or QTS
Counting rules, probability, mean and standard deviation, graphing, confidence intervals, hypothesis testing and regression analysis. Application in business and technology.

CREDITS

MATH& 151 Calculus I (SG/IS) 5
Prerequisite: MATH& 141 and MATH& 142 or QTS
Limits and limit laws, continuity, tangents and rates of change, derivatives using definition and differentiation rules for polynomial, exponential, trigonometric, logarithmic and transcendental functions, max/min problems, L'Hospital's rule, Newton's method and anti-differentiation.

MATH 172 Applied Math Business Focus 5
Prerequisite: MATH 096 or 098 or QTS
Equation solving, exponents, markup, income tax, compound interest, logarithms and finding time, annuities, amortization and business statistics.

MATH 173 Mathematic Concepts 5
Child Care/Early Education
Prerequisite: MATH 098 or QTS
The conceptual understanding, connections between and the application of math concepts, including number systems and computation, geometry, measurement, data analysis, probability and statistics, and problem solving in ways appropriate for young children.

MATH 174 Math for Allied Health 3
Prerequisites: Completion of Elementary Algebra (MATH 092) with a 2.0 or better or COMPASS Algebra score of 35 or higher. Mathematical concepts for allied health fields including systems of measurement, use of formulas, ratios and proportions in health applications; and basic statistics

PSYCHOLOGY

PSYC& 100 General Psychology 5
Prerequisite: ENGL 091
Introductory psychology for people with an interest in all that influences human behavior. Whether planning a career in psychology or gaining insights about yourself and others, you will find this a useful and interesting open enrollment course of study.

SOCIOLOGY

SOC& 101 Introduction to Sociology (WAOL) 5
Prerequisite: ENGL 091
Study of social groups and their structures, processes, institutions, and interactions. Understanding and applying the sociological perspective, stressing the importance of the impact of social forces external to the individual in shaping people's lives and experiences. Virtual online access available one week prior to class start date.

SOC 111 Understanding Diversity 5
Differences and similarities between diverse groups and individuals in our multicultural society and among children, youth, and families. By observing the dynamics of diversity in real life settings, students focus on understanding how cultural differences affect how people interact and communicate and the importance of respecting cultural differences.

Adult High School Completion

Students 18 years of age and older may earn a high school diploma at Bates Technical College by completing high school general education courses, continuing education courses, career education programs, and by receiving credit for work-based and community learning experiences. (See page 14.)



CHAPTER

Reference Guide

Reference Guide

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BA, Pacific Lutheran University
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AT, Bates Technical College

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Certificate, Microcomputer Manager, University of Washington

AMUNDSEN, TERESA

Instructor, Dental Assisting
Certified Dental Assistant

ANDERSON, JAMES

Instructor, Fire Service
AA, Miramar College
Certifications: Airport Firefighter; Fire Officer 1, 2; Fire Inspector 1,2,3; Hazmat Technician; Fire Inspector 1, 2; State Firefighter and Fire Officer Evaluation; Fire Officer Development Academy Coordinator;
Train the trainer; Flashover 1, 2

Bates Technical College faculty are required to hold a Washington State Professional Technical certificate as outlined in the Washington Administrative Code and rules of the State Board for Community and Technical Colleges.

ARNOLD, LAURIE

Career Specialist
MA, University of Washington

ASHER, EMILY

Instructor, Mathematics
MS, Portland State University
BS, Portland State University

BALDWIN, SARA

Instructor, Practical Nursing
BSN, University of Texas

BECK, EILEEN

Instructor, Practical Nursing
BSN, Pacific Lutheran University
ADN, Yakima Valley College

BOD, RYLISS

Instructor, Home & Family Life
BA, Central Washington University
Certificate, Clothing, Construction & Textiles, Central Washington University
Gerber Technology Certification
K-12 Washington & Alaska Teaching Certificate

BOST'N, JUDAE

Coordinator/Instructor, Business & Management
EdD, University of Arkansas
MEd, University of Arkansas
BA, University of Arkansas

BROCK, KATHLEEN

Instructor, Marketing & Business Management
MA, Business Administration, City University
BS, City University

BUCHANAN, NANCY

Instructor, Basic Studies/English
BA, University of Washington
Certified Irlen Screener

BUSELMEIER, CHRISTOPHER

Instructor, Carpentry
Journeyman Certification, United Brotherhood of Carpenters and Washington State Apprenticeship Committee

BYRN, WILLIAM

Instructor, Auto Body Rebuilding & Refinishing Certificate, Auto Body Rebuilding/ Refinishing, Bates Technical College
ASE Master Technician Certified

CARPENTER, BRYCE

Instructor, Diesel & Heavy Equipment Mechanic
Heavy Duty Journeyman Mechanic
ASE Master Medium & Heavy Truck Technician
Certifications: Eaton Autosift Gen II & III; Federal DOT Inspector; Lift Truck Trainer

CARROLL, JASON

Career Specialist
BA, Southern Illinois University

CASNER, CYNTHIA

Coordinator, Extended Learning/ Contact Training, Business & Management
MBA, Chaminade University
BA, Chaminade University
Certified Online Instructor
Certified Global Business Professional

CLARK, MICHAEL

Instructor, Culinary Arts
AA, The Culinary Institute of America
Public Health, Wash. State Dept. of Health

COLGAN, STEVEN

Academic Instructor
MS, Oregon State University
BA, Whitman College

CORLISS, ROBERT

Instructor, Job Readiness Training Center
MBA, University of New Hampshire
BA, University of Maine
OE/OD/Systems Management, Defense Language Institute, OESO

CULPEPPER, ROBIN

Instructor, Construction Trades,
Summer High School
Chief Operating Engineer certifications: Interburners; Boiler Feed Water Treatment

CUMMINGS, BETH

Coordinator/Instructor, Distance Learning
BA, University of Oregon

CURRY, ROGER

Vocational Advisor
MA, The Evergreen State College
BA, The Evergreen State College

CUTTING, ARTHUR

Instructor, Biomedical Service Technician & Electronic Equipment Service Technology
Certified Broadcast Technologist
Certificate, TV/Radio Repair Technician, Bates Technical College

DAVIS, JOHN

Instructor, CNST
Certifications: A+ Certification, Microsoft Certified Professional, Cisco Certified Network Associate, Network +

DEL ROSARIO, TERESITA NERISSA

Instructor, Business & Management
MS, University of St. Francis
BS, Southern Illinois University
AAS, Community College of the Air Force
AA, Seattle Central Community College
Certifications: Net+ ; Master MOUS

DELIGEANNIS, THOMAS**Instructor, Truck Driving**

Certifications: CDL Examiner; Lift Truck Inspector

DENNEY, THOMAS**Instructor, Computer Sciences & Network Repair**

Certifications: Networking Academy, PC Hardware & Software, Networking Operating Systems, Cisco, CCNA, Network Support Technician, State of Washington Vocational Education Certificate, Microsoft Systems Engineer, Microsoft Certified Professional, Comp TIA, A+

DZIEDZIAK, STEVEN**Instructor, Architectural Woodworking/ Cabinet Making Technology**

Certificate, Millmen's Apprenticeship, Bates Technical College

EBERLE, DANIEL**Coordinator, Special Needs and Disabilities****FAHERTY, LYNN****Instructor, Parent Education & Child Development, Home & Family Life**

BA, Western Washington University
Certified Parent Coach Certificate, Seattle Pacific University/Parent Coaching Institute
K-12 Washington State Teaching Certificate

FANCETT, EDWARD J.**Instructor, Civil Engineering**

BSCE, University of Arizona

FIELD, JAMES**Career Specialist**

MA, California State University, Northridge
BA, Humboldt State University
AAS-T, Bates Technical College

FINDLY, BRIDGET**Academics Instructor, ABE/GED**

MA, Western Washington University
BA, Western Washington University

FORTE, CATHERINE**Coordinator, Tutoring/Applied Academics**

MA, Pacific Lutheran University
BA, Willamette University

FRANKIE, SANDRA**Instructor, Practical Nursing**

RN, Ancker School of Nursing

FRENCH, DAN**Instructor, Truck Driving****FRENCH, LOUIE****Instructor, Truck Driving**

Certifications: Washington State CDL Examiner; Forklift Instructor

GABLEHOUSE, GENE**Instructor, Diesel & Heavy Equipment Mechanic**

Certificate, Diesel Mechanic; Bates Technical College, Heavy Duty Journeyman Mechanic
ASE Master Heavy Duty Truck Technician
ASE Refrigerant and Recovery
Certifications: Washington State Dept of Ecology: Emission
Cummins National Overhaul Warranty; Caterpillar 3400
Series Engine Technician & Electronic Engine: Federal DOT Inspector

GORACKE, DIANE**Instructor, Administrative Medical Assistant**

AS, Olympic College
Diploma, Medical Records Technician, St. Joseph Hospital
Certified Medical Assistant, AAMA
Certified Medical Transcriptionist, AHDI

GORACKE, TROY**Instructor, Basic Studies**

BA, Central Washington University

GRAHAM, JUDITH**Instructor, Software Development**

BA, Saint Martin's University
AA, Pierce College
AAS, Pierce College
Certifications: OCA, Oracle Software

GRAYDON, CHARLES**Instructor, Boat Building****GREENMAN, RONALD****Instructor, Fire Protection Engineering Technology**

MA, San Jose State University
BA, San Jose State University
Certifications: Washington State Fire Sprinkler
Level 3&ITT; Level 3 Automatic Sprinkler Layout
& Inspection, Testing & Maintenance, NICET; Level 2 Fire Alarm Systems & Special Hazards
Suppression Systems, NICET

GRIFFEE, CLINTON**Instructor, Welding**

AA, Mesa College
Certificate, Welding, Mesa College
Certifications: Welding Inspector; Welding Educator; AWS Certified Examiner; I-Car Qualified; WABO Examiner

GULZYNSKI, CAROL**Instructor, Home & Family Life**

BA, Allegheny College
AA, Pierce College

GUNTER, ROBERT**Instructor, Truck Driving**

Certifications: City of Tacoma Accident Analysis & Review; City of Tacoma-Fire and Police Special Equipment; AAMVA Instructor for Train the Trainer; Instructor-Fed Ex Ground 40-hr Straight Truck Program

HAMILTON, KELLY**Instructor, Biotechnology Lab Technician**

MS, University of Washington
BA, California State University
AS, Rancho Santiago Community College

HAWKINS, KEITH**Instructor, Electronics**

MEd, Lesley University; Certifications: Education Certificate, State of Washington Career & Technical Education Certificate
BS, Lesley University; BS, Truman State University; Northeast Missouri State Teachers College

HEANEY, ELLEN**Instructor, Childbirth Coordinator/ H& FL**

Certifications: Education Certificate, State of Washington
BS, Pennsylvania State University

HERIQUEZ, MAURICIO**Instructor, Denturist**

Denturist License, Washington State Dept. of Health

HIGHAM, WILLIAM**Instructor, Mathematics/Science**

MBA, Oklahoma City University
BS, University of Portland
BS, Southern Illinois University
BS Equivalent, Air Force Institute of Technology/ University of Washington

HOLAND, MARSHA**Instructor, Home & Family Life**

MBA, City University
BA, The Evergreen State College

HOLLIE, FLOSSIE**Instructor, Dental Assisting**

BS, Southern Illinois University-Carbondale
Certified Dental Assistant

HOLMES, ROBERT**Instructor, Dental Laboratory Technician**

CPR Certified, Bates Technical College

HORSTMAN, SHERYL**Instructor, Biotechnology Lab Technician**

BSc, [2] Oregon State University

HUSTON, RICK**Instructor, Welding**

AAS-T, Bates Technical College
AT, Bates Technical College
Certifications: Welding Inspector: Welding Educator: AWS Examiner: AWS Test Supervisor; I-Car Qualified: WABO Examiner

INGRAM, BLAKE

Worker Retraining Coordinator
Occupational Information Specialist, State of Washington

IRISH, JOHN

Instructor, Power Sports & Equipment Technology

AA, Green River Community College
Certifications: ASE Master Automobile Technician; Master Automotive Engine Machinist; Master Heavy Duty Truck Technician; Master Level Kawasaki Technician; Washington State Emissions Specialist

JANNI, TINA

Coordinator, Business & Management

BA, Western Washington University
Certificate, Playwrights Horizons Theatre School

JOHNSON, VIRGINIA

Instructor, Home & Family Life

BA, University of Washington

KAIS, KENNETH

Instructor, Denturist

DDS, Marquette University
BS, Carroll College

KELLEY, KARIN

Instructor, Legal Office Assistant

BS, Southern Illinois University-Carbondale
AT, Pierce College
AAS, Pierce College
Certificate, Computer Programming, Bates Technical College

KELLEY, WILLIE

Instructor, Audio/ Sound Technology

Certified Broadcast Technologist
Certificate, Radio Broadcast Technician, Bates Technical College

KILE, DAVID

Instructor, Cosmetology

National Certified Cosmetologist
National Certified Judge, NCA

KINNEY, MICHAEL

Instructor, Automotive Mechanic

ASE Master Technician
NATCB Master Technician
IMACA Technician
Aviation Electronics, Air Force University

KNAPP, ROGER

Instructor, Culinary Arts

AA, Culinary Institute of America
Certificate, Culinary Arts, Bates Technical College

KUHN, BARBARA

International Education Coordinator, Extended Learning

MPA, University of Puget Sound
BA, California State University Northridge
Certified Online Instructor
Certified Global Business Professional

LANDEIS, NANCY CALLAHAN

Instructor, Mathematics

MA, Pacific Lutheran University
BA, University of Puget Sound
K-12 Washington State Teaching Certificate

LANG, RICHARD

Instructor, Land Survey

Professional Land Surveyor, States of Alaska, Oregon, Washington

LEBLANC, PATRICIA

Instructor, Home & Family Life

BS, Purdue University
CDA, Representative
NAEYC Accreditation Validator

LEENHOUTS, DAVID

Instructor, Electrical Construction

AAS-T, Bates Technical College
AT, Bates Technical College
Master Electrician

LEONG, MARCI

Instructor, Hearing Instrument Technology

AuD, University of Florida
MS, University of Washington
BS, University of Washington

LLAPITAN, JEFFERY

Instructor, Electrical Construction

AT, Bates Technical College
Master Electrician

LOVIN, JEFF

Instructor, Vehicle Parts/Accessories Marketing

AAS-T Bates Technical College
Certified ASE Parts Specialist

MACKAY, STEVEN

Instructor, Sheet Metal technology

BA, National Labor College
AT, Bates Technical College
WWSM JATC Apprenticeship Instructor

MAGNUSSEN, BRIAN

Instructor, Architectural Engineering

MANN, ROBERT

Instructor, Information Technology, Sumner High School

MANTHOU, SANDY

Instructor, Home & Family Life

AAS, Highline Community College

MCDONALD, JOHN

Instructor, Automotive, Sumner High School

MCGUIRE, MICHAEL

Instructor, Diesel & Heavy Equipment Mechanic

AT, Pierce College
Certificate and Certifications:
Heavy Equipment mechanic Apprenticeship, Bates Technical College; Certificate of Supervision, Pierce College; Heavy Duty Journeyman Mechanic ASE Master Medium/Heavy Truck Technician; Federal/DOT Inspector

MCNUTT, DANA

Counselor, Technical High School

MEd, University of Washington
BA, The Evergreen State College
ESA Certification, Saint Martin's University

MERRIMAN, KRISTINA

Instructor, Dental Lab Technician

AA, Portland Community College
AS, Portland Community College
Certified Dental Technician

NAUER, DIANNE

Instructor, Practical Nursing Childbirth Educator

Certificates: Vocational Education Certificate, State of Washington

NEAL, LYNN

Instructor, Basic Studies/ Mathematics

BA, Willamette University
TESOL Certificate, Seattle University

NETTER, SHARON

Instructor, Administrative Office Assistant

MS, University of St. Francis
BS, Southern Illinois University
Certifications: Master MOS Instructor, Certified Administrative Professional

NEWMAN, THOMAS

Instructor, Electrical Power & Process Automation

BS, University of Puget Sound
ATA, Tacoma Community College
Certifications and Certifications:
Industrial Electrician/Electronics Technician; Western Washington Joint Apprenticeship Training Committee/NECA; Electronics Technician/ICET

OLEJNIK, DONNA

Instructor, Practical Nursing

MA, Pepperdine University
BSN, University of Connecticut

OLSON, JEFFERY

Instructor, Barber

Certificate, Barber/Stylist, Bates Technical College; Certified International Guest Artist

O'NEILL, LAURIE

Instructor, Child Care/ Early Education
AT, Bates Technical College
AAS, Muskegon Community College
Child Development Associate

OTTO, DEBRA

Instructor Academics
Applied Mathematics Instructor
Owens State Community College
BA, The University of Toledo

PARKER, BRIAN

Instructor, Digital Media
BA, University of Puget Sound

PATJENS, KAREN

Instructor, Home & Family Life
MA, Pacific Lutheran University
BA, Saint Martin's University
Certificate, Daycare Specialist, Clover Park
Technical College

PEILA, MARK

**Instructor, Heating, Ventilation, Air
Conditioning & Refrigeration**
Technician Journeyman Steamfitter
Certifications: EPA, CFC; NATE (A/C, ACE
Service Technician); ARI/ GAMA ICE (Residential
A/C and Heating, Light Commercial,
Commercial Refrigeration)

PETERSON, EMMETT

**Instructor, Computer Networking
Systems Technician**

PIPER, PATRICK

Instructor, Fire Service
BA, Western Oregon University
BA, University of Puget Sound
Certifications: Hazmat Technician; Fire Officer
1; Instructor 1; Rope Rescue Technician; Rescue
Systems 1 Instructor; EVAP Instructor; NFPA
Incident Safety Officer; Wildland Firefighting
Instructor

PREVO, BETH

Instructor, Basic Studies/ESL
MEd, Seattle University
BA, Lynchburg College

RAPKOCH, JOAN

Instructor, Home & Family Life
MS, University of Oregon
BS, Western Oregon State College

REED, STAN

**Instructor, Electrical Engineering Technician &
Electronics Engineering Technician**
AT, Tacoma Community College
Certifications: Certified Engineering Technician,
NICET; Electrical Engineering Technician
Certification, Bates Technical College;
Residential Electrician Trainee Certificate;
Radio/Telephone Communications School with
Cryptology and Security Clearance, USMC

RENO, PATTY

Instructor, Dental Assisting
Certified Dental Assistant

ROBB, MICHAEL

Instructor, Electrician
Master Electrician, State of Colorado
Electrician Journeyman, State of
Washington
Administrator General, State of
Washington

ROBBINS, CATHERINE

Instructor, Practical Nursing
Registered Nurse, Washington State
Dept. of Health
BS, Pacific Lutheran University

ROBERTSON, LAURA

**Instructor, Wireless Voice & Data
Communications**
AT, Pierce College
Certifications: FCC, IBEW Journeyman
Technician; Advanced Fiber Optic (CFOT/
AFOT); Multiple Telecommunications/
Cabling Certifications

ROBINSON, ROLAND

**Instructor, Broadcasting and Video
Production**
BA, Eastern Washington University
Certified Television Operator, SBE

ROGEL, SHERYL

Instructor, English
BA, Central Washington University
K-12 Washington State Teaching
Certificate

SAXTON, RACHEL

Instructor, Home & Family Life
AA, Tacoma Community College
Certificate, Early Childhood Education,
Bates Technical College

SCHAEFER, KURT

Instructor, History/Social Studies
Doctoral Candidate, University of
Washington
MA, Michigan State University
BA, Albion College
4-12 Washington State Teaching
Certificate

SCHERMAN, ELIZABETH

Instructor, English
MA, University of Washington
MAT, University of Puget Sound
BA, Pacific Lutheran University
4-12 Washington State Teaching
Certificate

SCHUB, HELEN SUE

Instructor, Librarian
MS, Pratt Institute
MA, New York University
BA, Queens College

SCHUMAKER, MONICA

Career Specialist

SCOTT, KAREN

Instructor, Bookkeeping/Accounting
BA, City University
Certificate of Tenure, Bates Technical
College

SCOTT, MICHAEL PAUL

**Instructor, Broadcasting and Video
Production**
AT, Bates Technical College
Certifications: Professional Broadcast
Engineer, SBE; Professional Broadcast
Engineer with ME, NARTE; Society of Motion
Picture & Television Engineers; General
Radio Telephone with Ship Radar, FCC

SHAFFER, TERRY

Instructor, Automotive Mechanic
ASE Master Automotive Technician
Journeyman Automotive Machinist

SHJERVEN, RAY

**Instructor, Diesel & Heavy Equipment
Mechanic**
Certificate, Auto Mechanic, Bates Technical
College; Heavy Duty Journeyman Mechanic
Certifications: Deere, Caterpillar Electronic
Engine; Eaton Electronic Transmission;
Washington State Department of Ecology
Emission; ASE Refrigerant and Recovery;
Cummins Engine ISC Electronics

SKEEN, DAVID

**Instructor, Advanced Technologies &
Computer Sciences**
Certified Electronics Technician
Certification Administrator

SMITH-KLAHN, CHRISTINA

Instructor, Home & Family Life
AA, Fort Steilacoom Community College
AAS, Fort Steilacoom Community College
Child Development Associate Representative

SMITH, INGRID

Instructor, Web Development
Certifications: Comp TIA A+; Network+; CIW
Site Designer; CIW Certified Instructor; MOS

STANTON, ROBIN

Counselor, Technical High School
BA, Central Washington University

STONE, DIANA

Instructor, Home & Family Life
MEd, Lesley College
BS, City University
AA, Pierce College

STORRAR, ROBERT

Instructor, Machinist
AT (3), Bates Technical College
Certificate, Tool and Die Apprenticeship,
Bates Technical College

TAYLOR, DARRELL**Instructor, Fire Service**

Certifications: Fire Officer I; Fire Instructor I; Fire Inspector I; HazMat Technician; HazMat Incident Commander; EVAP Instructor; Fire Department Pumper Operations Instructor; State Fire Fighter I Evaluator

THOMPSON, KENNETH**Instructor, Truck Driving**

Certifications: Forklift Instructor, Washington State CDL Examiner

TIGER, ALAN STEELE**Instructor, Human Relations and Communications Studies**

MS, University of Oregon
BS, University of Oregon

TORRES, LEXINE**Counselor, Technical High School**

BA, Eastern Washington University

TOTH, JOSEPH**Instructor, Computer Sciences & Network Repair**

BA, Northern Arizona University

TRAUFLER, ROBERT**Career Specialist**

BA, Washington State University

TROMBLEY, DALE**Instructor, Facilities Maintenance Engineer**

MEd, Educational Leadership, City University
BA, University of Washington
AT, Bates Technical College
Certified Plant Maintenance Manager
Certified Plant Supervisor

TRUSSLER, TIM**Instructor, Basic Studies**

BA, Seattle Pacific University
AAS-T, Bates Technical College
Master Certification, Microsoft Office 2000, 2003

VANO, JENNIE**Instructor, Librarian**

MLIS, University of Texas
BA, Gustavus Adolphus College

WARD, MARY**Instructor, Basic Studies**

BA, University of Puget Sound

WESTPHAL, WADE**Instructor, Truck Driving**

Certifications: Commercial Vehicle Safety Alliance; Federal Motor Carrier Safety Administrator; Washington Safety Council; Traffic Safety; Driver Training for Public Services; CDL Examiner; American Association of Motor Vehicle Administrators

WILLIAMS, EARL**Instructor, Job Readiness Training Center**

AAS-T, Bates Technical College

WILLIAMS, LEE**Coordinator, Business & Management**

MS, University of Arkansas
BS, Embry Riddle Aeronautical University
Certified Project Manager, George Washington University; Microsoft Certified Systems Engineer

WINTER, SUSAN**Instructor, Accounting/Bookkeeping**

BS, San Francisco State University
Enrolled Agent, Internal Revenue Service

YARBROUGH, WILLIAM DOUG**Instructor, Auto Body Rebuilding & Refinishing**

ASE Collision Repair Technician
ASE Refinishing Technician
I-Car STL Automotive GMA (MIG)

YOUNG, BARRY**Instructor, Machinist**

Puget Sound Chapter National Tooling & Machining Association
Advanced Locksmithing, Foley-Belsaw Institute, Comp TIA, Lightpoint Learning Solutions, Journeyman Certification, Machinist Certificate of Training US Air Force

YOUNG, EDWARD**Instructor, Mathematics/Science/Social Studies**

BS, Embry Riddle Aeronautical University
Teaching Certificate; History, Government, Mathematics, Computers, University of Washington

ZYLSTRA-MYTON, KARRIE**Instructor, Basic Studies/ESL**

MEd, Seattle University
BA, Western Washington University
TESOL Certification, Western Washington University