BHARATHIAR UNIVERSITY: COIMBATORE-641 046

B.Sc. CS/IT/CT/SS/MM/CSA &BCA

(For the students admitted from the academic year **2011-2012** and onwards)

SCHEME OF EXAMINATION - CBCS PATTERN

Part	Study Components	Course title	Ins. hrs/ week	Examinations				Credit
				Dur.Hrs	CIA	Marks	Total Marks	
	Semester I							
I	Language – I		6	3	25	75	100	4
II	English – I		6	3	25	75	100	4
III	Core 1: Computing fundamentals and C Programming		4	3	25	75	100	4
III	Core 2: Digital Fundamentals and Architecture		4	3	25	75	100	4
III	Core Lab 1: Programming Lab - C		3	3	40	60	100	4
III	Allied 1: &&		5	3	25	75	100	4
IV	Environmental Studies #		2	3	-	50	50	2
	Semester II							
I	Language – II		6	3	25	75	100	4
II	English – II		6	3	25	75	100	4
III	Core 3: COBOL Programming		5	3	25	75	100	4
III	Core Lab 2: Programming Lab – COBOL		4	3	40	60	100	4
III	Core Lab 3: Programming Lab –Internet Basics		2	3	20	30	50	2
III	Allied 2: &&		5	3	25	75	100	4
IV	Value Education – Human Rights #		2	3	-	50	50	2
	Semester III							
III	Core 4: Data Structures		6	3	25	75	100	4
III	Core 5: C++ Programming		6	3	25	75	100	4
III	Core Lab 3: Programming Lab - C++		5	3	40	60	100	4
III	Allied 3: &&		6	3	25	75	100	4
IV	Skill based Subject I –- &&		5	3	20	55	75	3
IV	Tamil @ / Advanced Tamil# (OR) Non-major elective-1 (Yoga for Human Excellence)# / Women's Rights#		2	3	-	50	50	2
	Semester IV							
III	Core 6: System Software and Operating System		6	3	25	75	100	4
III	Core 7: Java Programming		6	3	25	75	100	4

III	Core Lab 5: : Programming Lab - JAVA	6	3	40	60	100	4
III	Allied 4: &&	6	3	25	75	100	4
IV	Skill based Subject 2 –(lab) &&	4	3	30	45	75	3
IV	Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	2	3	-	50	50	2
	Semester V						
III	Core 8: RDBMS & ORACLE	5	3	25	75	100	4
III	Core 9: Visual Programming – Visual Basic & Visual C++	5	3	25	75	100	4
III	Core 10: : Project Work Lab %%	5	3	-	50	50	2
III	Core Lab 5: Visual Programming. – V.B.,V C++ & ORACLE	6	3	40	60	100	4
	Elective I &&	5	3	25	75	100	4
IV	Skill based Subject 3- &&	4	3	20	55	75	3
	Semester VI						
III	Core 11: Graphics & Multimedia	5	3	25	75	100	4
III	Core 12: Project Work Lab %%	5	3	-	150	150	6
III	Core Lab 6: Programming Lab - Graphics & Multimedia	6	3	40	60	100	4
III	Elective II &&	5	3	25	75	100	4
III	Elective III &&	5	3	25	75	100	4
IV	Skill Based Subject 4 (lab) - &&	4	3	30	45	75	3
V	Extension Activities @	-	-	50	-	50	2
	Total					3500	140

@ No University Examinations. Only Continuous Internal Assessment (CIA)

No Continuous Internal Assessment (CIA). Only University Examinations.

%% In lieu of theory paper – **see Project Work Guidelines**

&& Please see Annexure for list of Allied, Elective and Skill Based Subjects

BHARATHIAR UNIVERSITY: COIMBATORE-641 046
B.Sc. CS/IT/CT/SS/MM/CSA &BCA
(For the students admitted from the academic year **2011-2012** and onwards)
SCHEME OF EXAMINATION - CBCS PATTERN

List of Allied, Elective & Skill Based Subjects

COURSE / Subject	**BSc Computer Science**
Allied-1	Mathematical Structures for Computer Science
Allied-2	Discrete Mathematics
Allied-3	Computer Based Optimization Techniques
Allied-4	Business Accounting
Elective- I	E-Learning*/Computer Networks/ Organizational Behavior*
Elective- II	Network Security and Cryptography/ Artificial Intelligence and Expert Systems / Web Technology
Elective- III	Data Mining*/ Open source software*/Mastering LAN & Trouble Shooting
Skill-1	Software Engineering and Software Project Management*
Skill-2-Lab	Software Project Management- Lab*
Skill-3	Software Testing
Skill-4-Lab	Software Testing Lab

	BSc Information Technology
Allied-1	Mathematical Structures for Computer Science
Allied-2	Discrete Mathematics

Allied-3	Microprocessor & ALP
Allied-4	Embedded systems
Elective- I	Multimedia Systems / Animation Techniques / Business Intelligence*
Elective- II	Network Security and Administration/ Mobile Computing / Internet programming*
Elective- III	E- Learning */Component Technology/ Recent Trends in Enterprise Information Technology*
Skill-1	Introduction to web design & applications
Skill-2-Lab	HTML,XML,JAVA Script-Lab
Skill-3	DOT Net Programming
Skill-4_lab	Dot Net lab

	BSc Computer Technology
Allied-1	Mathematical Structures for Computer Science
Allied-2	Discrete Mathematics
Allied-3	Microprocessor & ALP
Allied-4	TCP/IP Protocol*
Elective- I	Mobile Computing/Distributed Computing/Digital Image Processing
Elective- II	Middle ware Technologies*/Animation Techniques/ Computer installation &Servicing
Elective- III	Data Mining*/Embedded Systems/ Computer Aided Design and Manufacturing
Skill-1	Data communication & Networks
Skill-2	Network lab

Skill-3	Network security & management
Skill-4	Network security lab

	BSc Software Systems
Allied-1	Mathematical Structures for Computer Science
Allied-2	Discrete Mathematics
Allied-3	Database systems
Allied-4	PRINCIPLES OF PROGRAMMING LANGUAGES
Elective- I	E-Commerce/ Design and Analysis of Algorithm*/ Web Technology
Elective- II	Computer Networks/Software Quality Assurance/ Management information Systems
Elective- III	Wireless Mobile Communications /Component Technology/ Mastering LAN & Trouble Shooting
Skill-1	WAP &XML*
Skill-2-lab	XML Lab*
Skill-3	ASP.Net
Skill-4- lab	ASP.Net Lab

	BSc Multi Media & Web technology
Allied-1	Mathematical Structures for Computer Science
Allied-2	Discrete Mathematics
Allied-3	Web Services
Allied-4	Digital Image Processing
Elective- I	Web Technology /Software Engineering/ CASE Tools Concepts and applications*
Elective- II	Flash/Distributed Computing/ Multimedia Systems
Elective- III	3Ds MAX Animation/ /Software Project Management / Organizational Behavior*
Skill-1	Introduction to PHP Programming
Skill-2	PHP Programming Lab
Skill-3	Animation Techniques
Skill-4	Animation – Lab- FLASH

Subject	**BSc Computer Science &Applications**
Allied-1	Mathematical Structures for Computer Science
Allied-2	Discrete Mathematics
Allied-3	Management information Systems
Allied-4	Organizational Behavior*
Elective- I	Client -Server Computing /E-Commerce/Software Engineering
Elective- II	Network Security & Cryptography/Distributed Computing/ Computer Networks
Elective- III	Mobile Computing/Web Technology/Software Testing

Skill-1	Internet Programming*
Skill-2	PHP Programming Lab*
Skill-3	WEB DESIGNING WITH ASP & ASP. Net
Skill-4	ASP LAB

Subject	**BCA**
Allied-1	Mathematical Structures for Computer Science
Allied-2	Discrete Mathematics
Allied-3	Computer Based Optimization Techniques
Allied-4	Business Accounting
Elective- I	Introduction to compiler design/ PHP & Scripting Language*/ Digital Image Processing
Elective- II	Computer Networks / .Net Programming / Distributed Computing
Elective- III	E-Commerce/ Web Services / Artificial Intelligence and Expert Systems
Skill-1	Web programming*
Skill-2	Web programming lab*
Skill-3	CASE Tools Concepts and applications*
Skill-4	CASE Tools –Lab*

BHARATHIAR UNIVERSITY: COIMBATORE-641 046
B.Sc. CS/IT/CT/SS/MM/CSA &BCA
(For the students admitted from the academic year **2011-2012** and onwards)
CBCS PATTERN

CORE SUBJECTS

Course	**BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)**
Effective from	**2011-2012 and Onwards**
Semester	**I**
Subject	**CORE 1 : Computing Fundamentals and C Programming**

Subject Description: This subject deals with the Computer fundamentals and the concepts of C programming language.
Goal: To learn about the Computer fundamentals and the C programming language concepts
Objective: On successful completion of this subject the students have the programming ability in C Language

UNIT – I: Fundamentals of Computers : Introduction – History of Computers-Generations of Computers- Classification of Computers-Basic Anatomy of a Computer System-Input Devices-Processor-Output Devices-Memory Management – Types of Software- Overview of Operating System- Programming Languages-Translator Programs-Problem Solving Techniques - Overview of C.

UNIT – II: Overview of C - Introduction - Character set - C tokens - keyword & Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables - Defining Symbolic Constants - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators - Arithmetic Expressions - Evaluation of expression - precedence of arithmetic operators - Type conversion in expression – operator precedence & associativity - Mathematical functions - Reading & Writing a character - Formatted input and output.

UNIT – III: Decision Making and Branching : Introduction – If , If….Else, nesting of If …Else statements- Else If ladder – The Switch statement, The ?: Operator – The Goto Statement. Decision Making and Looping : Introduction- The While statement- the do statement – the for statement-jumps in loops. Arrays – Character Arrays and Strings

UNIT – IV: User-Defined Functions : Introduction – Need and Elements of User-Defined Functions- Definition-Return Values and their types - Function Calls – Declarations – Category of Functions- Nesting of Functions - Recursion – Passing Arrays and Strings to Functions - The Scope, Visibility and Lifetime of Variables- Multi file Programs . Structures and Unions

UNIT V: Pointers: Introduction-Understanding pointers-Accessing the address of a variable-Declaration and Initialization of pointer Variable – Accessing a variable through its pointer-Chain of pointers- Pointer Expressions – Pointer Increments and Scale factor- Pointers and Arrays- Pointers and Strings – Array of pointers – Pointers as Function Arguments-Functions returning pointers – Pointers to Functions – Pointers and Structures. File Management in C.

TEXT BOOK:

1. E Balagurusamy: "COMPUTING FUNDAMENTALS & C PROGRAMMING" – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.

REFERENCE BOOK:

1. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
2. Henry Mullish & Huubert L.Cooper: The Sprit of C, Jaico Pub. House, 1996.

Course	**BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)**
Effective from	**2011-2012 and Onwards**
Semester	**I**
Subject	**CORE 2** : DIGITAL FUNDAMENTALS AND ARCHITECTURE

Subject Description: This subject deals with fundamentals of digital computers, Microprocessors and System architecture.
Goal: To learn about Computer Fundamentals and its Architecture.
Objective: On successful completion of this subject the students should have Knowledge on Digital circuits, Microprocessor architecture, and Interfacing of various components.

UNIT-I: Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code. Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Half subtractor, Full subtractor, Parallel binary subtractor - Digital Logic: the Basic Gates – NOR, NAND, XOR Gates.

UNIT-II: Combinational Logic Circuits: Boolean algebra – Karnaugh map – Canonical form 1 – Construction and properties – Implicants – Don't care combinations - Product of sum, Sum of products, simplifications. Sequential circuits: Flip-Flops: RS, D, JK, and T - Multiplexers – Demultiplexers – Decoder Encoder – shift registers-Counters.

UNIT-III: Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy- Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

UNIT-IV: Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set-associative Mapping – Writing into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory, Page Table, Page Replacement.
UNIT-V: CASE STUDY: Pin out diagram, Architecture, Organization and addressing modes of 80286-80386-80486-Introduction to microcontrollers.

TEXT BOOKS:
1. Digital principles and applications, Albert Paul Malvino, Donald P Leach , TMH,1996.
2.COMPUTER SYSTEM ARCHITECTURE -M. Morris Mano , PHI.
3. MICROPROCESSORS AND ITS APPLICATIONS-RAMESH S.GOANKAR
REFERENCE BOOKS:
1. DIGITAL ELECTRONICS CIRCUITS AND SYSTEMS - V.K. Puri , TMH.
2. COMPUTER ARCHITECTURE , M. Carter , Schaum's outline series, TMH.

Course	**(BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)**
Effective from	**2011-2012 and Onwards**
Semester	**I**
Subject	**CORE LAB 1 : PRACTICAL LIST- PROGRAMMING LAB – C**

1. Write a C program to find the sum, average, standard deviation for a given set of numbers.
2. Write a C program to generate "n" prime numbers.
3. Write a C program to generate Fibonacci series.
4. Write a C program to print magic square of order n where n > 3 and n is odd.
5. Write a C program to sort the given set of numbers in ascending order.
6. Write a C program to check whether the given string is a palindrome or not using pointers.
7. Write a C program to count the number of Vowels in the given sentence.
8. Write a C program to find the factorial of a given number using recursive function.
9. Write a C program to print the student's Mark sheet assuming roll no, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet in the university pattern.
10. Write a function using pointers to add two matrices and to return the resultant matrix to the calling function.
11. Write a C program which receives two filenames as arguments and check whether the file contents are same or not. If same delete the second file.
12. Write a program which takes a file as command line argument and copy it to another file. At the end of the second file write the total i)no of chars ii) no. of words and iii) no. of lines.

Course	**BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)**
Effective from	**2011-2012 and Onwards**
Semester	**II**
Subject	**CORE 3 : COBOL PROGRAMMING**

Subject Description: This subject deals with the programming concepts on business applications using COBOL language.
Goal: To learn about COBOL programming language for business problems
Objective: On successful completion of this subject the students should have :
- Writing programs for business applications
- Concepts of file handling in programming languages

UNIT – I: Introduction to COBOL: COBOL words - Literals - Structure of COBOL Program - COBOL Coding Sheet-IDENTIFICATION DIVISION- ENVIRONMENT DIVISION – DATA DIVISION – Editing and Non-editing Picture Clauses – Level Numbers – VALUE and FILLER Clause.

UNIT – II: PROCEDURE DIVISION – Data Movement Verb – Arithmetic Verbs : Add, Subtract, Multiply, Divide, Compute – Input/Output Statement: Accept, Display Control Verbs: GOTO – GOTO Depending on – Stop Run – CORRESPONDING Option - ROUNDED option - ON SIZE ERROR option - Simple Programs Using Above Verbs.

UNIT – III: Conditional Statements: If Statement – Nested if statement – Sign Condition – Class Condition- Condition Name – Compound Condition- PERFORM Statements, More about
DATA Division: RENAMES-REDEFINES – Simple Programs Using the above Verbs.

UNIT – IV: Files in COBOL: Sequential – Relative – Indexed Sequential - Random files – File description and Record description entries - Input/Output Verbs: Open, read, write, rewrite, Close, Delete – Sort Verb – Simple Programs using above Verbs.

UNIT – V: Table Handling: Occurs Clause – Two and Multi-Dimensional Tables – Occurs. Indexed By Clause – SET Verb – START and SEARCH Verb – Random Files-Keys & Their Importance – INVALID KEY Clause – SCREEN SECTION - Simple Programs using above Verbs.

TEXT BOOKS:

1. COBOL PROGRAMMING, M.K. R OY & D.GHOSH DASTIDAR,TATA Mc.GRAW HILL, SECOND EDITION - 1998.

REFERENCE BOOKS:

1. COBOL programming – V. Rajaraman, PHI Pub.
2. Introduction To Cobol Programmin g – Author Dr. R. Krishnamoorthy, JJ Publications.
3. Structured COBOL – Welburn, Tata McGrawhill, 4 th Edition.

Course	**BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)**
Effective from	**2011-2012 and Onwards**
Semester	**II**
Subject	**CORE LAB II : PRACTICAL LIST- PROGRAMMING LAB – COBOL**

1. Write a COBOL program to find the sum of individual digits of a 10-digit number until a single digit is produced.
2. Write a COBOL program to accept the inputs student Name, Marks for five subjects and declare the result as PASS, if the student gets minimum 40 in each subject otherwise declare the result as FAIL.
3. Write a COBOL program to accept a date (DDMMYY) and display the result in the following specified format: For eg : 030498 as 3rd APR 1998 [Use REDEFINES Clause].
4. Write a COBOL program to display the given three digit number into words using OCCURS clause For eg : 342 THREE HUNDRED AND FORTY TWO
5. Write a COBOL program to create a student data file using the following fields:
ROLL-NO, NAME, AGE, SEX, YEAR-IN-COLLEGE, MARKS for five subjects.
6. Write a COBOL program to create the following two files using the student data file (Created by pro gram 5) .
FILE 1: List of male student who are studying third year of the College.
FILE 2: List of female students who are studying first year of the College. [Use MOVE…….CORRESPONDING Option]

7. Write a COBOL program to sort the student data file (created by program-5) in the ascending order of the fields SEX, Year-in-college and ROLL-NO. [Use SORT Verb].
8. Write a COBOL program to create an Employee file for the employees of an organization using the following fields :
EMP-NO , NAME , DOB, SEX, BASIC-PAY, DESIGNATION.
9. Write a COBOL program to update the new BASIC-PAY of each employee in the Employee data file (created in program 8) by incrementing 25% of BASIC -PAY.
10. Write a COBOL program to find the number of male employees whose BASIC-PAY > 4000 and the number of female employees whose BASIC-PAY < 3000 using the employee data file (created by program 8)
11. Write a COBOL program to create an inventory data file by using the following fields :
ITEM-CODE, DESCRIPTION, OPEN-STOCK, PURCHASES, SALES, SAFETY-LEVEL, CLOSE-STOCK.
12. Write a COBOL program to prepare RE- ORDER LEVEL STATEMENT by using the inventory data file (crated by program 11) if the CLOSE-STOCK is less than SAFETY-LEVEL :

A.B.C.& COMPANY, CHENNAI-600006
RE-ORDER LEVEL STATEMENT

ITEM-CODE DESCRIPTION SAFETY-LEVEL CLOSE-STOCK

Course	**BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)**
Effective from	**2011-2012 and Onwards**
Semester	**II**
Subject	**CORE LAB III : PRACTICAL LIST- Internet Basics**

1. To create an email-id.
2. To compose and send a mail.
3. To forward a mail and to reply for a mail.
4. To send a mail with an attachment.
5. To download the attached document of a mail received.
6. To send a mail to a large number of recipients using cc and bcc options.
7. To search a thing using a search engine.
8. To open and read newspaper sites, TV program schedules using Internet.
9. To verify a university /college details by opening their websites.
10. To upload your resume with any one job portal.

Semester III - Core 4 :Subject Title: DATA STRUCTURES

UNIT I

Introduction: Introduction of Algorithms, Analysing Algorithms. Arrays: Sparse Matrices - Representation of Arrays. Stacks and Queues. Fundamentals - Evaluation of Expression Infix to Postfix Conversion - Multiple Stacks and Queues

UNIT II

Linked List: Singly Linked List - Linked Stacks and Queues - Polynomial Addition - More on Linked Lists - Sparse Matrices - Doubly Linked List and Dynamic - Storage Management - Garbage Collection and Compaction.

UNIT III

Trees: Basic Terminology - Binary Trees - Binary Tree Representations - Binary Trees -Traversal - More on Binary Trees - Threaded Binary Trees - Binary Tree Representation of Trees - Council Binary Trees. Graphs: Terminology and Representations - Traversals, Connected Components and Spanning Trees Shortest Paths and Transitive Closure

UNIT IV

External Sorting: Storage Devices -Sorting with Disks: K-Way Merging - Sorting with Tapes

Symbol Tables: Static Tree Tables - Dynamic Tree Tables - Hash Tables: Hashing Functions - Overflow Handling.

UNIT V

Internal Sorting: Insertion Sort - Quick Sort - 2 Way Merge Sort - Heap Sort - Shell Sort - Sorting on Several Keys. Files: Files, Queries and Sequential organizations - Index Techniques -File Organizations.

TEXT BOOKS

1. Ellis Horowitz, Sartaj Shani, Data and File Structures Galgotia Publication.
2. Ellis Horowitz, Sartaj Shani, Sanguthevar Rajasekaran, â€œComputer Algorithms Galgotia Publication.

SEMESTER III CORE 5 : C++ PROGRAMMING

Subject Description: This subject deals with Object–oriented programming concepts like Abstraction, Encapsulation, Inheritance and Polymorphism.
Goal: Knowledge on Object–oriented concept and programming with C++.
Objective: To inculcate knowledge on Object-oriented programming concepts using C++.

UNIT-I: Introduction to C++ - key concepts of Object-Oriented Programming –Advantages – Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures : - Decision Making and Statements : If .. else ,jump, goto, break, continue, Switch case statements - Loops in C++ : For,While, Do - Functions in C++ - Inline functions – Function Overloading.

UNIT-II : Classes and Objects : Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members.

UNIT-III

Operator Overloading: Overloading unary, binary operators – Overloading Friend functions – type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multi path inheritance – Virtual base Classes – Abstract Classes.

UNIT-IV:

Pointers – Declaration – Pointer to Class , Object – this pointer – Pointers to derived classes and Base classes – Arrays – Characteristics – array of classes – Memory models – new and delete operators – dynamic object – Binding , Polymorphism and Virtual Functions.

UNIT-V:

Files – File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String – Declaring and Initializing string objects – String Attributes – Miscellaneous functions .

TEXT BOOKS :

1. Ashok N Kamthane , OBJECT-ORIENTED PROGRAMMING WITH ANSI AND TURBOC C++, Pearson Education publication. 2003.

REFERENCE BOOKS:

1.E. Balagurusamy, OBJECT-ORIENTED PROGRAMMING WITH C++, Tata Mc-Grawhill Pupblication, 1998.
2. Maria Litvin & Gray Litvin , C++ for you, Vikas publication, 2002.
3. John R Hubbard, Programming with C, 2nd Edition, TMH publication, 2002.

CORE LAB - 4 : PROGRAMMING LAB C++

1. Write a C++ Program to create a class to implement the Data Structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element check for overflow and underflow conditions..

2. Write a C++ Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write a Member function ADD (),SUB(),MUL(),DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.

3. Write a C++ Program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.

4. Write a C++ Program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT.

5. Write a C++ Program to create a class STRING. Write a Member Function to initialize ,get and display stings. Overload the Operator "+" to Concatenate two Strings, "= =" to Compare two strings

6. Write a C++ Program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.

7. Write a C++ Program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGE from class Shape and Calculate Area and Perimeter of each class separately and display the result.

8. Write a C++ Program to create two classes each class consists of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.

9. Write a C++ Program using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.

10. Write a C++ Program to check whether the given string is a palindrome or not using Pointers.
11. Write a C++ Program to create a File and to display the contents of that file with line numbers.

12. Write a C++ Program to merge two files into a single file.

CORE-6: SYSTEM SOFTWARE AND OPERATING SYSTEM

Subject Description: It deals Fundamentals of System Software and Resources of Operating System.

Goal: Knowledge on various System Software and Operating System concepts.

Objective: Enable the student to get sufficient knowledge on various system resources.

UNIT- I: Introduction –System Software and machine architecture-Assemblers-Basic assembler functions - Machine dependent features-program relocation-Machine independent features – literals - symbol defining statements-expressions-program blocks-control sections and program linking - Assembler design options-one pass assemblers-multi pass assemblers.

Loader and Linkers: Basic Loader Functions - Machine dependent loader features – relocation – program – linking - Machine independent loader features - Automatic Library search - Loader options - Loader design options - linkage editor - dynamic linking - Bootstrap loader.

UNIT- II: Macroprocessor: Basic macroprocessor functions - Machine independent macroprocessor features - concatenation of macro parameter macro processor design options-recursive macro expansion - general purpose macro processor - macro processing within language translators. Text Editors: Overview of editing process - user interface - editor structure.

UNIT-III: Machine dependent compiler features - Intermediate form of the program-Machine dependent code optimization-machine independent compiler features-Compiler design options-division into passes-interpreters-p –code compilers-compiler-compilers.

UNIT IV: Introduction: Definition of DOS – History of DOS – Definition Of Process - Process states - process states transition – Interrupt processing – interrupt classes - Storage Management Real Storage: Real storage management strategies – Contiguous versus Non-contiguous storage allocation – Single User Contiguous Storage allocation-Fixed partition multiprogramming – Variable partition multiprogramming.

Virtual Storage: Virtual storage management strategies – Page replacement strategies – Working sets – Demand paging – page size.

UNIT V: Processor Management Job and Processor Scheduling: Preemptive Vs Non-preemptive scheduling – Priorities – Deadline scheduling - Device and Information Management Disk Performance Optimization: Operation of moving head disk storage – Need for disk scheduling – Seek Optimization –

File and Database Systems: File System – Functions – Organization – Allocating and freeing space – File descriptor – Access control matrix.

TEXT BOOK:

1. Leland –L-Beck, "System Software-An Introduction to Systems Programming", Pearson Education Publishers, Third Edition-2003.

2. H. M Deitel , " Operating Systems " , 2nd Edition, Perason Education Publication,2003.

REFERENCE BOOKS :

1. Achyut s Godbole , " Operating Systems" , TMH Publications , 2002

2. John J. Donovan , "Systems Programming " , TMH Publications , 1991

3. D.M. Dhamdhrer, "Systems Programming and Operating Systems ", 2nd Revised Edition.

CORE-7 : JAVA PROGRAMMING

Subject Description: This subject deals with Java Programming concepts.

Goal: Enable to create wide range of Applications and Applets using Java.

Objective: To inculcate knowledge on Java Programming concepts.

UNIT-I: Fundamentals of Object-Oriented Programming: Object-Oriented Paradigm – Basic Concepts of Object-Oriented Programming – Benefits of Object-Oriented Programming – Application of Object-Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www –Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine.

UNIT-II: Constants, Variables, Data Types - Operators and Expressions – Decision Making and Branching: if, if ..else, nested if, switch, ? : Operator - Decision Making and Looping: while, do, for – Jumps in Loops - Labeled Loops – Classes, Objects and Methods.

UNIT-III: Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes together – Multithreaded Programming.

UNIT-IV: Managing Errors and Exceptions – Applet Programming – Graphics Programming.

UNIT-V: Managing Input / Output Files in Java : Concepts of Streams- Stream Classes – Byte Stream classes – Character stream classes – Using streams – I/O Classes – File Class – I/O exceptions – Creation of files – Reading / Writing characters, Byte-Handling Primitive data Types – Random Access Files.

TEXTBOOKS:

1. PROGRAMMING WITH JAVA – A PRIMER - E. Balagurusamy, 3 rd Edition, TMH.

REFERENCE BOOKS:

1. THE COMPLETE REFERENCE JAVA 2 - Patrick Naughton & Hebert Schildt, 3rd ed,TMH

2. PROGRAMMING WITH JAVA – John R. Hubbard, 2nd Edition, TMH.

CORE LAB-5 : PROGRAMMING LAB - JAVA

1. Write a Java Applications to extract a portion of a character string and print the extracted string.

2. Write a Java Program to implement the concept of multiple inheritance using Interfaces.

3. Write a Java Program to create an Exception called payout-of-bounds and throw the exception.

4. Write a Java Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.

5. Write a Java Program to draw several shapes in the created windows.

6. Write a Java Program to create a frame with four text fields name, street, city and pin code with suitable tables. Also add a button called “my details”, When the button is clicked its corresponding values are to be appeared in the text fields.

7. Write a Java Program to demonstrate the Multiple Selection List-box.

8. Write a Java Program to create a frame with three text fields for name, age and qualification and a text field for multiple line for address

9. Write a Java Program to create Menu Bars and pull down menus.

10. Write a Java Program to create frames which respond to the mouse clicks. For each events with mouse such as mouse up, mouse down, etc., the corresponding message to be displayed.

11. Write a Java Program to draw circle, square, ellipse and rectangle at the mouse click positions.

12. Write a Java Program which open an existing file and append text to that file.

CORE-8: RDBMS & ORACLE

Subject Description: This subject deals with RDBMS concepts using Oracle SQL and PL/SQL.

Goal: Knowledge on Oracle Programming techniques.

Objective: To inculcate knowledge on RDBMS concepts and Programming with Oracle.

UNIT-I: Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – De -normalization – Another Example of Normalization.

UNIT-II: Oracle9*i*: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus - SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - *i*SQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

UNIT-III: Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions –Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

UNIT-IV: PL/SQL: A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

UNIT-V: PL/SQL Composite Data Types: Records – Tables – arrays. Named Blocks: Procedures – Functions – Packages –Triggers –Data Dictionary Views.

TEXTBOOKS:

1. DATABASE SYSTEMS USING ORCLE – Nilesh Shah, 2nd edition, PHI.

(UNIT-I: Chapters 1 & 2 UNIT-II: Chapters 3 & 4 UNIT III: Chapters 5 & 6

UNIT-IV: Chapters 10 & 11 UNIT-V: Chapters 12,13 & 14)

REFERENCE BOOKS:

1. DATABASE MANAGEMNET SYSTEMS – Arun Majumdar & Pritimoy Bhattacharya, 2007, TMH.

2. DATABASE MANAGEMETN SYSTEMS – Gerald V. Post, 3rd edition, TMH.

Core 9 :VISUALPROGRAMMING- VISUAL BASIC & VISUAL C++

UNIT-I:
Introducing Visual Basic: What is VB? – Event and Event Procedures – Object related concepts –VB program Development Process- Logical Program Organization -VB Program Components – VB environment – Opening, Saving, Running a VB Project –Visual Basic Fundamentals: constants – Variables – Data Types and Declarations – Operators and Expressions – Program Comments. Branching and Looping: Relational operators and Logical Expressions – Branching with If-Then, If-Then-Else blocks – Selection Select Case – Looping with For-Next, Do-Loop, While-Wend – Stop statement.

UNIT-II: Visual Basic control Fundamentals: Control tools – Control tool Categories – Working with Controls – Naming Forms and Controls – Assigning Property values to Forms and Controls – Executing commands – Displaying Output – Entering Input Data – Selecting Multiple Features, Exclusive Alternatives, Form from a List - Assigning Properties collectively – Generating Error Messages – Creating timed Events – Scroll Bars.
Menus and Dialog Boxes: Building Drop-Down Menus – Accessing Menu from Keyboard – Menu Enhancements – Submenus – Pop-Up Menus – Dialog Boxes – more about MsgBox Function – The Input Box function.

UNIT-III:
Procedures: Modules and Procedures – Sub Procedures – Event Procedures – Function Procedures – Scope – Optional Arguments.

Arrays: Characteristics – Declarations –Processing – Passing Arrays to Procedures – Dynamic Arrays – Array-related Functions – Control Arrays – Looping with for Each-Next.

Data Files : Sequential Data Files – Random-Access Data files– Binary files.

UNIT IV:
Visual C++: Programming: MFC and Windows – MFC Fundamentals – MFS Class Hierarchy – MFC Member & Global Functions – Various Object Properties – Cobject,

CArchive, CWinApp, CWnd, CFile, CGD, Object, CExcept, CDialog, CString, CEdit, CList –
Resources: Menus – Accelerators, Dialogs, Icons, Bitmaps, Versions – Message Maps – Document/View Architecture.

UNIT V
VC++ (Contd): connecting to Data Source – DAO – ODBC – Thread – Based Multitaksing – Visual C++ APPWIZARD and class Wizard.

TEXTBOOKS:
1. VISUAL BASIC – Byron S. Gottfried, Schaum's Outline series, TMH.
2. Eric A Smith, Valor Whisher, Hank Marquis, "Visual Basic 6 Programming Bible".
3 . Herbert Schildt, "MFC Programming From the Ground up" Second Edition , Tata McGrawHill.

REFERENCE BOOKS
1. MSDN Visual studio Library.
2. Cornell, "Visual Basic 6 From the Ground Up", Tata Mcgraw – Hill Company Ltd
3. Mveller, "Visual C++ from the Ground up", TMCH.
4. Viktor Toth, "Visual C++6 Unleased", Second Edition, Techmedia.

CORE Lab 6 - Visual Programming : VB , VC++ & ORACLE

(One Program either from VB or VC++ and one from ORACLE)

VISUAL BASIC
1. Write a simple VB program to accept a number as input and convert them into
a. Binary
b. Octal
c. Hexa-decimal
2. Write a simple VB program to add the items to list box with user input and move the selected item to combo box one by one.
3. Write a simple VB program to develop a calculator with basic operation.
4. Design an form using common dialog control to display the font, save and open dialog box without using the action control property.
5. Write a simple program to prepare a Questionnaire.
6. Write a VB Program to develop a menu driven program
Add a MDI window in the form and arrange them in the cascading/horizontal style using menus (Create a menu to add form, arrange) (Menu Item 1).
Also change the form color using the menu in another menu item (Menu Item 2).

VISUAL C++
1. Write a VC++ Program to display Toolbar and Status bar
2. Write a VC++ Program to add, delete string in a list box
3. Write a VC++ Program to perform menu Editor
4. Write a VC++ Program to perform Free Hand Drawing
5. Write a VC++ Program to perform serialization-SDI
6. Write a VC++ Program to perform serialization-MDI

ORACLE

Data Definition Basics

1. Create the following table *(PK - Primary Key, FK – Foreign Key)* cat_head, route_head, place_head, route_detail, ticket_detail, ticket_head with the mapping given below:

cat_head route_head
(cat_code PK) (cat_code FK)
route_head route_detail
(route_id PK) (route_id FK)
ticket_head ticket_detail
(tick_no PK) (tick_no FK)
place_head route_detail
(place_id PK) (place_id FK)

(i) Alter the table ticket_header to add a check constraint on ticket_no to accept values between 1 and 500

(ii) Alter table route_header to add a column with data type as long.

Data Manipulation Basics

2. (a) Insert values to above tables

(b) Display only those routes that originate in madras and terminate at cochin

(c) Display only distinct category code from the table route_header in descending manner.

(d) Update the table route_header to set the distance between madras and coimbatore as 500

Queries

3. a. Select rows from ticket_details such that ticket number greater than any ticket_number in
Ticket_header.

B. Select rows from route_header such that the route_id are greater than all route_id in route_detail
Where place id is “100”.

C. Create view tick from ticket_header with Ticket_no, Origin, Destination, route_id

Report

4. Generate a report from the table ticket_detail for the particular ticket_no

PL/SQL

5.

a. Write a PL/SQL block to update the bus_station to be “ERODE” where place_id is ’01’ or ‘05’ [place_header]

b. Write a PL/SQL block to satisfy the following condition by accepting the route_id as user input. If the distance is less than 500 than update the fare to be 200

c. Write a Database trigter before insert for each row on the table route_detail not allowing transaction on Saturday / Sunday

d. Write a Database trigger before delete for each row not allowing deletion and give the appropriate message on the table route_details

PROJECT

6. Develop a Simple Project for Student Database Management System using VB as front end and ORACLE as back end.

CORE-11: GRAPHICS & MULTIMEDIA

Subject Description: This subject deals with Graphics Concepts and Multimedia methodologies.

Goal: Mathematical Knowledge on Graphics and Technical background of Multimedia.

Objective: To inculcate knowledge on Graphics & Multimedia concepts.

(GRAPHICS – UNITS I & II)

UNIT-I: Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

UNIT-II: 2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. 2D Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations.

(MULTIMEDIA – UNITS III, IV &V)

UNIT-III: Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats. Image: Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

UNIT-IV: Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission – Audio File formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response - Audio Processing Software.

UNIT-V: Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – PC Video – Video File Formats and CODECs – Video Editing – Video Editing Software. Animation: Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. Compression: MPEG-1 Audio – MPEG-1 Video - MPEG-2Audio – MPEG-2 Video.

TEXTBOOKS:

1. COMPUTER GRAPHICS – Donald Hearn, M.Pauline Baker, 2nd edition, PHI.

(UNIT-I: 3.1-3.6,4.1-4.5 & UNIT-II: 5.1-5.4,6.1-6.5)

2. PRINCIPLES OF MULTIMEDIA – Ranjan Parekh, 2007, TMH.

(UNIT III: 4.1-4.7,5.1-5.16 UNIT-IV: 7.1-7.3,7.8-7.14,7.18-7.20,7.22,7.24,7.26-28

UNIT-V: 9.5-9.10,9.13,9.15,10.10-10.13)

REFERENCE BOOKS:

1. COMPUTER GRAPHICS – Amarendra N Sinha, Arun D Udai, TMH.

2. MULTIMEDIA: Making it Work – Tay Vaughan, 7th edition, TMH.

CORE LAB-7:PROGRAMMING LAB - GRAPHICS and MULTIMEDIA

Multimedia:

1. Create Sun Flower using Photoshop.
2. Animate Plane Flying in the Clouds using Photoshop.
3. Create Plastic Surgery for the Nose using Photoshop.
4. Create See-through text using Photoshop.
5. Create a Web Page using Photoshop.
6. Convert Black and White Photo to Color Photo using Photoshop.

Graphics:

1. write a program to rotate an image.
2. write a program to drop each word of a sentence one by one from the top.
3. write a program to drop a line using DDA Algorithm.
4. write a program to move a car with sound effect.
5. write a program to bounce a ball an move it with sound effect.
6. write a program to test whether a given pixel is inside or outside or on a polygon.

BHARATHIAR UNIVERSITY: COIMBATORE-641 046

B.Sc. CS/IT/CT/SS/MM/CSA &BCA

(For the students admitted from the academic year **2011-2012** and onwards)

CBCS PATTERN

ALLIED SUBJECTS

Course	**BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)**
Effective from	**2011-2012 and Onwards**
Semester	**I**
Subject	**Allied 1: MATHEMATICAL STRUCTURES FOR COMPUTER SCIENCE**

Subject Description: This subject deals with mathematical concepts like Matrices, Numerical analysis and Statistical methods for computer science and applications.
Goal: To learn about the mathematical structures for computer based applications

Objective: On successful completion of this subject the students should have :
- Understanding the concepts of mathematics
- Learning applications of statistical and numerical methods for Computer Science.

UNIT – I: Matrices – Introduction – Determination – Inverse of a matrix – Rank of a Matrix – Eigen value Problems

UNIT – II: System of Simultaneous Linear algebraic Equation – Gauss elimination, Gauss Jordon, Gauss Seidal methods. The solution of Numerical Algebraic & Transcendental equation – Bisection method – Newton – Rapson method – false position method.

UNIT – III: Numerical Differentiations – Newton's forward Difference - Backward Difference – Startling formula Numerical Integration – Trapezoidal Rule & Simpson's rule Numerical solutions of ordering differential Equations – Taylor series & Runge kutta method

UNIT – IV: Measures of central tendency – Mean Median and Mode – Relationship among mean media and mode. Measures of dispersion – Range, quartile deviation, mean deviation and Standard deviation

UNIT – V: Regression and Correlation – Types of relationship – Linear regression – Correlation – Coefficient of correlation – Regression equation of variables – Discrete Probability distribution – Uniform, Binomial & poision Distribution

TEXT BOOKS:
1. Engineering Mathematics Volume II – Dr M.K. Venkataraman – NPC (Unit I)
2. Numerical Methods in science & Engineering - M.K. Venkataraman – NPC , Revised Edition -2005 (Unit II & III)

3. Business Statistics - S.P. Gupta & M.P. Gupta Sultan Chand and Sons (Unit IV & V)

REFERENCE BOOKS:

1. Numerical methods – E. Balagurusamy Tata MC Graw Hill.
2. Fundamental of Mathematical statistics S C Gupta, V. K. Kapoor Sultan Chand and Sons

Course	**BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)**
Effective from	**2011-2012 and Onwards**
Semester	**II**
Subject	**ALLIED 2: DISCRETE MATHEMATICS**

Subject Description: This subject deals with discrete structures like set theory, mathematical logic, relations, languages, graphs and trees.

Goal: To learn about the discrete structures for computer based applications.

Objective: On successful completion of this subject the students should have:

- Understanding the concepts of discrete mathematics
- Learning applications of discrete structures in Computer Science.

UNIT – I: Set theory-Introduction-Set & its Elements-Set Description-Types of sets-Venn-Euler Diagrams- Set operations & Laws of set theory-Fundamental products-partitions of sets-minsets- Algebra of sets and Duality-Inclusion and Exclusion principle

UNIT – II: Mathematical logic – Introduction- prepositional calculus –Basic logical operations- Tautologies-Contradiction-Argument-Method o f proof- Predicate calculus.

UNIT – III: Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – Composition of functions.

UNIT – IV: Languages – Operations on languages – Regular Expressions and regular languages – Grammar – Types of grammars – Finite state machine – Finite – State automata

UNIT – V: Graph Theory – Basic terminology – paths, cycle & Connectivity – Sub graphs – Types of graphs – Representation of graphs in compute memory - Trees – Properties of trees – Binary trees – traversing Binary trees – Computer Representation of general trees.

TEXT BOOKS:

1. Discrete Mathematics – J.K. Sharma Second Edition – 2005 , Macmillan India Ltd. (UNIT I TO V)

REFERENCE BOOKS:

1. Discrete Mathematics Structures with Applications to computer science - J. P Tremblay R Manohar – Mc Graw Hill International Edition
3. Discrete Mathematics – Dr M. K. Venketaramen, Dr N.Sridharan, N.Chandarasekaran – The National publishing Company Chennai.

ALLIED-3 – CS/BCA :COMPUTER BASED OPTIMIZATION TECHNIQUES

Subject Description: This subject deals various optimization techniques for linear programming, Transportation, Assignment Problems, Game theory, PERT and CPM.

Goal: To learn about the managerial concepts like decision making, optimization, etc.

Objective: On successful completion of this subject the students should have:

- Understanding various mathematical applications in industries.
- Decision making for real time environment.

- - - - -

UNIT-I: Linear Programming - Mathematical Model assumption of linear Programming – Graphical method - Principles of Simplex method, Big-M Method ,Duality, Dual simplex method.
UNIT-II: Transportation and assignment problem - Integer Programming Branch and Round Techniques - Assignment and Traveling Salesman Problem.
UNIT-III: Game Theory - Concept of Pure and Mixed Strategies – Solving 2 x 2 matrix with and without saddle point - n x 2 - 2 x m games. Replacement models - Elementary replacement models - present value - rate of return - depreciation - Individual replacement – Group replacement.
UNIT-IV: *(Derivations not included)* Queuing Theory - definition of waiting line model - Queue discipline - traffic intensity - poison arrival – Birth death process - Problem from single server: finite and infinite population model – Problems from multi server: finite and infinite population model.
UNIT-V: PERT & CPM - Network representation - backward pass - Forward pass - computation - Pert Network - Probability factor – updating and Crashing.

TEXT BOOKS

1. **OPERATIONS RESEARCH -** Manmohan, P.K. Gupta, Kanthiswarup, S. CHAND & SONS - 1997.

REFERENCE BOOKS

1. **OPERATIONS RESEARCH** - **Hamdy A Taha**, Pearson Education, 7th edition, 2002
2. **PROBLEMS IN OPERATIONS RESEARCH** – **P.K. Gupta, D.S. Hira,** S. Chand Pub

-

ALLIED – 4 : CS/BCA : BUSINESS ACCOUNTING

Goal: To enable the students to learn principles and concepts of Accountancy.

Objective: On successful completion of this course, the student should have understood

- Concepts and conventions of Accounting.
- Basic Accounting framework

UNIT –I

Fundamentals of Book Keeping – Accounting Concepts and Conventions – Journal – Ledger – Subsidiary books – Trial balance.

UNIT – II

Final accounts of a sole trader with adjustments – Errors and rectification

UNIT – III

Bill of exchange- Accommodation bills – Average due date – Account current.

UNIT – IV

Accounting for consignments and Joint ventures

UNIT – V

Bank Reconciliation statement – Receipts and Payments and income and expenditure account and Balance sheet – Accounts of professionals.

Note : Distribution of Marks between problems and theory shall be 80% and 20%.

BOOKS FOR REFERENCE

1. N.Vinayakam, P.L.Mani, K.L.Nagarajan – *Principles of Accountancy* – S.Chand & Company Ltd.,

2. T.S.Grewal – *Introduction to Accountancy*- S.Chand & Company Ltd.,

3. R.L.Gupta, V.K.Gupta, M.C.Shukla – *Financial Accounting* – Sultanchand & sons

4. T.S.Grewal, S.C.Gupta, S.P.Jain – *Advanced Accountancy*- Sultanchand & sons

5. K.L.Narang, S.N.Maheswari - *Advanced Accountancy*-Kalyani publishers

6. S.K.Maheswari, T.S.Reddy - *Advanced Accountancy*-Vikas publishers

7. A.Murthy -Financial Accounting – Margham Publishers

8. P.C.Tulsian - *Advanced Accountancy* – Tata McGraw Hill Companies.

9. A.Mukherjee, M.Hanif – *Modern Accountancy. Vol.1*- Tata McGraw Hill Companies

Allied Paper 3 – IT/CT: MICROPROCESSOR AND ALP

UNIT I	Introduction to microprocessors : Evolution of microprocessors – Single-chip Microcomputer – Embedded Microprocessors – Bit- Slice processors – Microprogramming – RISC and CISC Processors – Scalar and Superscalar Processors – Vector Processors – Array Processors – Symbolic Processors – Digital Signal Processors Intel 8086 – Pin Description of Intel 8086 – Operating modes of 8086 – Register organization of 8086 – BIU and EU – Interrupts – 8086 based computer system – Addressing Modes of 8086
UNIT II	8086 Instruction Set – Instruction Groups – Addressing Mode Byte – Segment Register Selection – Segment Override – 8086 Instructions Assembly Language Programs for 8086: Largest Number, Smallest Number in a Data Array – Numbers in Ascending and Descending order – Block Move or Relocation – Block Move using REP instruction – Sum of a series – Multibyte Addition
UNIT III	Intel 386 and 486 Microprocessors: Intel 386 and 486 Microprocessor – 486DX Architecture – Register Organization of 486 Microprocessor – Memory Organization – Operating Modes of Intel 486 – Virtual Memory – Memory Managament Unit – Gates – Interrupts and Exceptions – Addressing Modes of 80486 – Pin Configuration
UNIT IV	Input devices – Output devices – Memory and I/O addressing – 8086 Addressing and Address Decoding – Programmable I/O Ports – DMA Data Transfer. Other Microprocessors – PowerPC Microprocessors – Pentium Microprocessors – Pentium Pro microprocessor – Alpha Microprocessor – Cyrix Microprocessor – MIPS Microprocessor – AMD Microprocessor
UNIT V	MOTOROLA 68000, MOTOROLA 68020, MOTOROLA 68030, MOTOROLA 68040 Interfacing of A/D Converter and Applications: Introduction – Interfacing of ADC 0808 or ADC 0809 to Intel 8086 – Bipolar to Unipolar Converter – Sample and Hold Circuit, LF 398 – Microprocessor-based Measurement and Control of Physical Quantities
Text Book(s)	Badri Ram, " Advanced Microprocessors and Interfacing", Tata McGraw-Hill Publishing Company Limited, Fourteenth reprint, 2007
Ref. Book(s)	A.K. Ray, K.M. Bhurchandi, " Advanced Microprocessors and Peripherals", Tata McGraw-Hill Publishing Company Limited, Second Edition, 2007

Allied /Elective : IT/CT: EMBEDDED SYSTEMS

UNIT I	Introduction to Embedded System: An Embedded System – Processor in the System – Other Hardware units – Software embedded into a system – Exemplary embedded system – Embedded system on chip and in VLSI circuit. Processor and Memory organization: Structural units in a processor – Processor selection – Memory devices – Memory selection - Allocation of memory – DMA – Interfacing processor, memories and I/O devices
UNIT II	Devices and buses for device networks: I/O devices – Timer and counting devices – Serial communication – Host system. Device drivers and Interrupts servicing mechanism: Device drivers – Parallel port device drivers – Serial port device drivers – Device drivers for IPTD – Interrupt servicing mechanism – Context and the periods for context-switching, dead-line and interrupt latency
UNIT III	Programming concepts and embedded programming in C and C++: Software programming in ALP and C – C program elements – Header and source files and processor directives – Macros and functions – Data types – Data structures – Modifiers – Statements – Loops and pointers – Queues – Stacks – Lists and ordered lists – Embedded programming in C++ - Java – C program compiler and cross compiler – Source code for engineering tools for embedded C / C++ - Optimization of memory needs
UNIT IV	Program modeling concepts in single and multi processor systems: Modeling process for software analysis before software implementation – Programming models for event controlled or response time constrained real time programs – Modeling of multiprocessor systems. Software engineering practices: Software algorithm complexity – Software development process life cycle and its models – Software analysis – Software design – Implementation – Testing, Validation and debugging – Software maintenance
UNIT V	Inter-process communication and synchronization of processes, tasks and threads: Multiple processor – Problem of sharing data by multiple tasks and routines – Inter process communication. Real time operating systems: Operating system services – I/O subsystem – Network operating systems – Real time and embedded operating systems – Interrupt routine in RTOS environment – RTOS task scheduling – Performance metric in scheduling
Text Book(s)	Raj Kamal, " Embedded Systems – Architecture, Programming and Design", TMH, 2007

ALLIED -4 BSc CT : TCP/IP Protocol

Unit I

Introduction: Protocols and standards – standards Organizations – internet standards – internet administration -.

The OSI model and the TCP/IP protocol suit : the OSI model – layers in the OSI model – TCP/IP protocol suit – addressing – IP versions.

Unit II

Local area networks – point-to point WANS – SWITCHED WANS – connecting devices – classful addressing – other issues – subnetting and super netting .

Unit III

IP addresses – classless addressing: Variable length blocks – subnetting – address allocation.

Delivery, forwarding and routing of IP packets: Delivery - forwarding – routing – structure of a router.

Unit IV

Internet Protocol : Datagram – fragmentation – options – checksum – IP package.

User datagram protocol : Process-to-process communication – user datagram – checksum – UDP operation .

Transmission control protocol : TCP services – TCP feature – segment – A TCP connection – state transition diagram – TCP timers – TCP package.

Unit V

Domain name systems: Name space – domain Name space – distribution of name space – DNS in the internet – resolution .

Remote Login - TELNET: Concept – network virtual terminal (NVT) – NVT character set – embedding – options – option negotiation – controlling the server – out-of-band signaling – mode of operation – user interface – security issue.

TEXT BOOK :

TCP/IP Protocol Suit by Behrouz A. Forouzan Tata McGraw-Hill Third Edn.

Referece Books :

Computer networks – protocols , standards ,and interfaces by Uyless Black PHI , 2 nd edition.

Allied 3 - SS : Database Systems

Unit I

Introduction – purpose of database systems – Data Abstraction – Data models – Instances and schemes – Data independence – DDL – DML – Database users – ER model – Entity sets – Keys – ER diagram – relational model – Structure – Relations Algebra – Relational Calculus – Views.

Unit II

SQL – QBE – QUEL – Basic structure – various Operations – Relational database design problems in the relational data base design – Normalization – normalization using functional, Multi value and join dependencies**.**

Unit III

File and system structure – overall system structure – file Organization – data dictionary – Indexing and hashing – basic concept B and B+ tree indices – Static and Dynamic hash functions.

Unit IV

Recovery and atomicity – failures classification and types – Transaction model and Log based recovery, schedules – serial and non-serial types – Serialization of schedules and views – testing for seriability – lock based protocols – time based protocols – validation techniques – multiple Granularity – multiversion schemes – insert and delete Operations.

Unit V

Distributed data bases – structure of distributed databases – Trade offs in Distributing the database – Transparency and autonomy – distributed query processing – recovery in distributed systems – commit protocols – security and integrity violations – authorization and views – security specification – encryption – Statistical databases.

Text Book(s):

Henry F.Korth, and Abraham Silberschatz,, Sudarshan "Database system Concepts", McGraw Hill, 4th Edition, 2002

Allied 4 :BSc SS - PRINCIPLES OF PROGRAMMING LANGUAGES

UNIT - I

Language Design Issues: History-Role of Programming languages - environments - Impact of machine Architectures - Lnaguage Translation Issues: Programming language Syntax- Stages in Translation - formal Translation models - recursive descent Parsing

UNIT - II

Modeling Language Prpperties: Formal Properties of Languages- Language Semantics- Elementary data Types: Properties of Types and Object- Scalar Data Types - Composite Data Types

UNIT - III

Encapsulation: Structure data types - Abstract data types - Encapsulation by sub programs Type Definitions Inheritance: - Polymorphisms

UNIT -IV

Functional Programming: Programs as Functions- Functional Programming in an Imperative Language - LISP - Functional Programming with static typing - delayed evaluation- Mathematical functional programming- recursive functions and lambda

calculus - Logic programming : Logic and Logic Programs - Horn Clauses - Prolog - Problems with logic programming

UNIT - V

Formal Semantics: Sample small language - operational Semantics - Denotation Semantics - Axiomatic Semantics - Program correctness - Parallel Programming: Parallel Processing and programming languages - threads - Semaphore - monitors-message passing - parallelism Non Imperative Languages

TEXT BOOKS :

1. Terrence W Pratt, Marvin V Zelkowitz, Programming Languages - Design and Implementation, PHI Publications, 4th edition, 2008
2. Kenneth C. Louden , programming Languages-Principles and Practics , Cengage Learning Publications , 2 Edition, 2008 UNIT -IV :

REFERENCE BOOKS

1. Daniel P Friedman, Mitchell Wand, Christopher T Haynes, Essentials of programming languages, 2 Edition, PHI Publishers, 2005

Allied/Elective : BSc MM/BCA: WEB SERVICES

Subject Description

This Course presents the Web Services Provided.

Goal : To enable the students to learn what is web service and Protocols used for Web services

Objective

On successful completion of the course the students should have:

- Understood how to build the real world applications using Web Services.

Contents

Unit I Introduction to Web Services – Industry standards, Technologies and Concepts underlying Web Services – their support to Web Services, Applications that consume Web Services.

Unit II

XML – its choice for Web Services – Network protocols to backend databases – Technologies – SOAP, WSDL – exchange of information between applications in distributed environment – Locating remote Web Services – its access and usage, UDDI Specification – an introduction.

Unit III

A brief outline of Web Services – Conversation – static and interactive aspects of system interface and its implementation, Work Flow – Orchestration and refinement, Transactions, Security issues – the Common attacks – security attacks facilitated within Web services Quality of Services – Architecting of systems to meet users requirement with respect to latency, performance, reliability, QOS metrics, Mobile and wireless Services – energy consumption, network bandwith utilization, Portals and Services Management.

Unit – IV

Building real world Enterprise applications using Web Services – sample source codes to develop Web Services – Steps necessary to build and deploy Web Services and Client applications to meet Customer's requirement – Easier development, Customisation, maintenance, Transactional requirements, seamless porting to multiple devices and platforms.

Unit – V

Development of Web Services and applications onto Tomcat application Server and Axis SOAP server (both are freewares) – Web Services Platform as a set of Enabling technologies for XML based distributed Computing.

TEXT BOOKS :

1. Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services: An Architects Guide", Prentice Hall, Nov 2003

2. Keith Ballinger, "NET Web services: Architecture and Implementation with .Net", Pearson Education, First Education Feb 2003.

REFERENCE BOOKS :

1. Ramesh Nagappan, Developing Java Web Services: Architecting and developing secure Web Services Using Java", John Wiley and Sons, first Edition Feb 2003

2.Eric A Marks and Mark J Werrell, "Executive Guide to Web services", John Wiley and sons, March 2003

3.Anne Thomas Manes, "Web Services: A managers Guide" Addison Wesley, June 2003.

ALLIED/ELECTIVE: DIGITAL IMAGE PROCESSING

UNIT-1 Digital Image Fundamentals

Image Transforms- Walsh, Hadamard, Discrete cosine, Hotelling Transforms-Image Formation. File Formats.

UNIT-2 Image Enhancement

Histogram Modification Techniques-Image Smoothening-Image Sharpening-Image Restoration-Degradation Model-Diagonalization of Circulant and Black circulant matrices-algebraic approach to restoration.

UNIT-3 Image Compression and Segmentation

Compression Models-Elements of Information Theory-Error free Compression-Inage Segmentation- Detection of Discontinuities-Edge Linking and boundary detection-Thresholding-Regions Oriented Segmentations-Morphology.

UNIT-4 Feature Extraction

Image feature descriptions-Interpretations of Line drawings, Image pattern recognition algorithms.

UNIT-5 Knowledge Representation and Use

Knowledge Representation and Use-Image analysis using Knowledge about scenes-Image Understanding using two dimensional methods.

TEXT BOOK:

1. Gonzalez.R.C & Woods. R.E., "Digital Image Processing", 2nd Edition, Pearson Education, 2002. (Chapters: 1, 2, 3, 4, 5, 8, 9, 10, 11 and 12).
2. Anil Jain.K, "Fundamentals of Digital image processing", Prentice Hall of India, 1989. (Chapters: 5, 7, 8 and 11).

REFERENCES:

1. Sid Ahmed, "Image Processing", McGraw Hill, New York, 1995.
2. Milan Sonka, Vaclav Hlavac and Roger Boyle, "Image processing Analysis and Machine vision", Second Edition, Thomson Brooks/Cole, 1999.

ALLIED/ELECTIVE: MANAGEMENT INFORMATION SYSTEM

Subject Description : This Subject deals with the MIS

Goal : : To learn about MIS

Objective : On Successful Completion of this subject the students should have:

- Management Role,Control, Process , DSS , BPR, Etc.,

UNIT I:

Introduction : MIS Concept – MIS Definition – Role of the MIS – Impact of the MIS – MIS and Computer. Role and Importance of Management – Introduction Approaches to Management – Functions of the Manager – Management as a Control System – Process of Management.

UNIT II:

Organization Structure and Theory – Strategic Management of Business : Basics of Management Information Systems : Decision Making – Information Systems.

UNIT III:

System Analysis and Design – Development of MIS – Choice of Information Technology – Applications of Management Information System – Decision Support Systems.

UNIT IV:

Enterprise Management Systems – Technology of Information Systems – Database Management Systems – Object Oriented Technology (OOT) : Conceptual Presentation – Client Server Architecture.

UNIT V:

Networks – Business Process Re-Engineering (BPR) – Data Ware House : Architecture to Implementation – Electronic Business Technology.

TEXT BOOK:

W.S.Jawadekar – " Management Information Systems " 2nd edition , Tata McGraw Hill.

REFERENCE BOOK:

Robert .Schultheis , Mary Sumner – " Management Information System" - 4thedition TMH.

ALLIED/ELECTIVE : ORGANIZATIONAL BEHAVIOR

Unit I

Introduction to Organizational Behavior –Related Disciplines – Theoretical Framework – Organizational Approaches – Modern Organizational Scenario: Impact of Globalization

Unit II

Individual Behavior – Perception – Process – Changes - Personality and Attitudes – Job Satisfaction

Unit III

Motivation: Needs, Content and Process: Motivation: Content Theories – Process Theories – Contemporary Theories – Motivation Applied – Job Design and Goal setting. Leadership – Background – Process- Styles – Activities – Skills

Unit IV

Group Dynamics – The nature of Informal Organizations – Formal Groups – Interactive conflict: Interpersonal conflict – Inter-group behavior and conflict – Negotiation Skills: Going beyond conflict management – Traditional Negotiation Approaches - Contemporary negotiation skills.

Unit V

Communication – Role and background – Interpersonal communication – Informal communication- The Decision Making process – Participative Decision making techniques – Organization design – culture – Organization change and development

Text Book:

1. Fred Luthans, Organizational Behavior, 9th Edition, McGraw-Hill Irwin, 2002.
2. John W. Newstorm and Keith Davis, Organizational Behavior, Tenth Edition, TMG, 1998

BHARATHIAR UNIVERSITY: COIMBATORE-641 046

B.Sc. CS/IT/CT/SS/MM/CSA &BCA

(For the students admitted from the academic year **2011-2012** and onwards)

CBCS PATTERN

ELECTIVE SUBJECTS

ELECTIVE-: E-LEARNING

UNIT-I

E-Learning Evolution - Advantages and Disadvantages of E-Learning - Instructional design Models for E-Learning -Applying User-Centered Design to E-Learning - Methods and Measures to Retain Students Enrolled in Online Education -Choosing an Effective Communication Tool.

UNIT-II

Flash : Geometric shape tools – Drawing tools- fill and stroke controls- Selection Tools.

UNIT-III

Creating Animation and Effects: Animation strategies – TimeLine Animation – Character animation Techniques – fundamentals of Editing.

UNIT-IV

Sound: Import and Export formats – Importing sound to flash – adding sound to timeline – synchronizing audio to animations- stopping sounds – Working with sound forge.

UNIT-V

Video: Integrating and Importing Video – Editing video with Adobe Premiere – Organizing & Editing clips – Adding Transition between clips – Adding special effects to video.

TEXT BOOKS

1. . MacroMedia flash 8 Bible - Robert ReinHardt and Snow Dowd. 2006, 1st Edition, Wiley India (P) Ltd, New Delhi.
2. E-Learning Concepts and Techniques - Pamela Berman, institute for Interactive Technologies, Bloomsburg University of Pennsylvania, USA (e-book), 2006,.

REFERENCES

1. Flash 8 - Dinesh Maidasani. 20061st Edition, Firewall Media Publications, New Delhi.
2. Fred T.Hofstetter. 2001. MultiMedia Literacy, Tata McGraw Hill, New Delhi.
3. Multimedia making it work, Tay Vaughan. 2008. 7th Edition, Tata McGraw-Hill, New Delhi.

ELECTIVE:COMPUER NETWORKS

Subject Description: This subject deals different Network concepts like Layers, Wireless Concepts, Transmission and Security.

Goal: Knowledge on Computer Networks and technologies like broadband and Bluetooth.

Objective: To inculcate knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth.

UNIT-I: Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models: OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP -Critique of OSI and protocols – Critique of the TCP/IP Reference model.

UNIT-II: PHYSICAL LAYER - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber.

UNIT-III: DATA-LINK LAYER: Error Detection and correction – Elementary Data-link Protocols – Sliding Window Protocols. MEDIUM-ACCESS CONTROL SUB LAYER: Multiple Access Protocols – Ethernet – Wireless LANs - Broadband Wireless – Bluetooth.

UNIT-IV: NETWORK LAYER: Routing algorithms – Congestion Control Algorithms. TRANSPORT LAYER: Elements of Transport Protocols – Internet Transport Protocols: TCP.

UNIT-V: APPLICATION LAYER: DNS – E-mail. NETWORK SECURITY: Cryptography – Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures.

TEXTBOOKS:

1. COMPUTER NETWORKS – Andrew S. Tanenbaum, 4th edition, PHI.

(UNIT-I:1.2-1.4 UNIT-II:2.2-2.4 UNIT-III:4.2-4.6 UNIT-IV:5.2,5.3,6.2,6.5 UNIT-V:7.1,7.2,8.1-8.4)

REFERENCE BOOKS:

1. DATA COMMUNICATION AND NETWORKS – Achyut Godbole, 2007, TMH.

2. COMPUTER NETWORKS Protocols, Standards, and Interfaces – Uyless Black, 2nd ed, PHI.

ELECTIVE : NETWORK SECURITY & CRYPTOGRAPHY

Subject Description: deals with principles of encryption algorithms, and conventional and public key cryptography.

Goal: enable to know the levels of network security and security tools.

Objective: to impart knowledge regarding cryptography and network security.

UNIT-I:

Service mechanism and attacks – The OSI security architecture – A model for network security – symmetric Cipher model – Substitution techniques – transposition techniques – simplified des – block chipper principles – the strength of des – block chipper design principles and modes of operation.

UNIT-II:

Triple des-blow fish – RCS Advanced Symmetric Block Ciphers –RC4 stream Cipher confidentially using symmetric encryption – introduction to number theory – public – key cryptography and RSA.

UNIT-III:

Key management – Diffle Hellman key exchange – message authentication and hash function – hash algorithm – digital signature and authentication protocols – digital signature standard.

UNIT-IV:

Authentication application – pretty good privacy – S/MIME – ip security – web security considerations –secure socket layer transport layer security –secure electronic transaction.

UNIT-V

Intruders –intrusion detection – password management –viruses and related threats – virus countermeasures – fire wall design principles – trusted systems

TEXTBOOK:

William Stallings, "Cryptography and Network Security Principles and Practices".

Fourth edition, phi Education Asia.

REFERENCE BOOKS:

1) Atul kahate "Cryptography and Network Security" second edition. TMH.
2) Behrouz A.forouzan" Cryptography and Network Security " TMH.

ELECTIVE : ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

Subject Description: This subject deals with various AI Concepts and Methodologies.

Goal: To Acquire Knowledge on various AI Techniques and Expert Systems.

Objective: To have enriched knowledge regarding heuristic search, Knowledge representation and Expert systems

- - - - -

UNIT I: Introduction: AI Problems – AI techniques – Criteria for success. Problems, Problem Spaces, Search: State space search – Production Systems – Problem Characteristics – Issues in design of Search.

UNIT II: Heuristic Search techniques: Generate and Test – Hill Climbing – Best-Fist, Problem Reduction, Constraint Satisfaction, Means-end analysis.

UNIT III: Knowledge representation issues: Representations and mappings – Approaches to Knowledge representations – Issues in Knowledge representations – Frame Problem.

UNIT IV: Using Predicate Logic: Representing simple facts in logic – Representing Instance and Isa relationships – Computable functions and predicates – Resolution – Natural deduction.

UNIT V: Representing knowledge using rules: Procedural Vs Declarative knowledge – Logic programming – Forward Vs Backward reasoning – Matching – Control knowledge

Brief explanation of Expert Systems-Definition- Characteristics-architecture-Knowledge Engineering- Expert System Life Cycle-Knowledge Acquisition Strategies-Expert System Tools.

Text Book:

1. Elaine rich and Kelvin Knight, "Artificial Intelligence ", Tata McGrawhill Publication, 2nd Edition, 1991.(chapters 1- 6).

Reference Book :

1. "Artificial Intelligence a modern Approach "– Stuart Russell & Peter Norvig, 2nd Edition Perason Education.

2. "Artificial Intelligence ", George F Luger , 4th Edition , Pearsons Education Publ, 2002.

3. "Foundations of Artificial Intelligent and Expert Systems", V S JANAKI RAMAN, K SARUKESI, P GOPALAKRISHNAN, MacMillan India limited.,

ELECTIVE: WEB TECHNOLOGY

Subject Description: This subject deals TCP/IP, FTP, WWW and Web technologies like ASP, JVM, DCOM, XML and WAP.

Goal: Knowledge on various Web technologies.

Objective: To inculcate knowledge web technological concepts and functioning internet.

UNIT-I: TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example- The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP – Ports and Sockets – Active Open and Passive Open - TCP Connections – What makes TCP reliable? – TCP Packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

UNIT-II: DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing - Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

UNIT-III: Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins – Frames – Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.

UNIT-IV: Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA – Java Remote Method Invocation – DCOM. EDI: Overview – Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI – Financial EDI – EDI and internet.

UNIT-V: XML: SGML – Basics of XML – XML Parsers – Need for a standard. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack – Concerns about WAP and its future – Alternatives to WAP.

TEXTBOOKS:

1. WEB TECHNOLOGIES TCP/IP to Internet Applications Architectures – Achyut S Godbole & Atul Kahate, 2007 ,TMH.

(UNIT-I: 3.1-3.5,4.1-4.12 UNIT-II: 5.1-5.4,6.1-6.7 UNIT III:8.1-8.1,9.1-9.13

UNIT IV: 10.1-10.7,15.1-15.3,16.1-16.8 UNIT-V: 17.1-17.4,18.1-18.6)

REFERENCE BOOKS:

1. INTERNET AND WEB TECHNOLOGIES – Rajkamal, TMH.

2. TCP/IP PROTOCOL SUITE – Behrouz A. Forouzan, 3rd edition, TMH.

ELECTIVE : DATA MINING

Subject Description : This Subject deals with the Data Mining
Goal : To learn about Data Mining
Objective : On Successful Completion of this subject the students should have knowledge on Data mining Concepts

UNIT I:
Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – Social Implications of Data Mining – Data Mining from Data Base Perspective.

UNIT II :
Data Mining Techniques – a Statistical Perspective on data mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

UNIT III :
Classification : Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms – Rule Based Algorithms – Combining Techniques.

UNIT IV:
Clustering : Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms . Partitional Algorithms.

UNIT V:
Association Rules : Introduction - Large Item Sets – Basic Algorithms – Parallel & Distributed Algorithms – Comparing Approaches – Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.

TEXT BOOK :
Margaret H.Dunbam – " Data Mining Introductory and Advanced Topics " Pearson Education – 2003.

REFERENCE BOOK :
Jiawei Han & Micheline Kamber – " Data Mining Concepts & Techniques " 2001 Academic Press.

ELECTIVE : OPEN SOURCE SOFTWARE

Unit 1

Introduction to open sources – Need of open sources – advantages of open sources – application of open sources. Open source operating systems: LINUX : Introduction – general overview –Kernel mode and user mode –process – advanced concepts –scheduling – personalities – cloning – signals – development with Linux.

Unit II

MySQL : Introduction – setting up account – starting, terminating and writing your own SQL programs-record selection Technology – working with strings – Date and Time – sorting Query results – generating summary –working with meta data –using sequences – MySQL and Web.

Unit III

PHP: : Introduction –programming in web environment –variables- constants – data types – operators – statements – functions – arrays – OOP – string manipulations and regular expression – file handling and data storage – PHP and SQL database – PHP and LDAP – PHP connectivity – sending and receiving E-mails – debugging and error handling – security –templates.

Unit IV

Syntax and style – python objects – numbers – sequences – strings – lists and tuples – dictionaries – conditional loops –files – input and output – errors and exceptions – functions – modules – classes and OOP – execution environment.

Unit V

Pert backgrounder – pert overview – pearl parsing rules – variables and data – statements and control structures – subroutines -, packages and modules – working with files – data manipulation.

Text books:

1. The Linux Kernel book by Remy Card, Eric and Frank Mevel- Wiley Publications 2003.
2. MySQL Bible by Steve Suchring – John Wiley 2002.

Reference Books:

1. Programming PHP by Rasmus Lerdorf and Levin Tatroe –O'Reilly 2002
2. Core Python Programming Wesley J. Chun Prentice Hall 2001
3. Perl : The Complete Reference 2 nd Edn by Martin c. Brown Tata McGraw-Hill 2009
4. MySQL : The Complete Reference 2 nd Edn by Vikram Vaswani Tata McGraw-Hill 2009
5. PHP : The Complete Reference 2 nd Edn by Steve Holzner Tata McGraw-Hill 2009

ELECTIVE : MASTERING LAN AND TROUBLESHOOTING

Subject Description This Course presents the details of Local Area Networks.

Goals To enable the students to learn about the internal organization of a PC

Objective

On successful completion of the course the students should have:

- Understood types of faults and how to solve the problems

Contents

UNIT I PC- Hardware overview

Introduction to computer organization-Memory-PC family-PC hardware-interconnections between Boxes-Inside the boxes:-motherboard, daughter boards, floppy disk drive, HDD, speaker, mode switch, front panel indicators & Control-mother board logic-memory space-I/O port address-wait state-interrupts -I/O data transfer-DMA channels-POST sequence.

UNIT II PERIPHERAL DEVICES

Floppy drive controller-Overview-Disk format-FDC system interface-FDD interface Hard Disk controller-overview-Disk Drives and interface-controller post description Hard disk card-Hard disk format.

Display Adapter:-CRT display- CRT controller principle -CRT controller 6845 **Printer controller**:-Centronics interface-programming sequence -Hardware overview-printer-sub assemblers.

UNIT III MOTHERBOARD CIRCUITS

Mother board functions-functional units and inter communications:-Reset logic -CPU nucleus logic-DMA logic-Wait state logic-NM logic-speaker logic-keyboard interface-SMPS.

UNIT IV INSTALLATION AND MAINTENANCE

Introduction-pre installation planning -installation practice-routine checks-special configuration memory up gradation - HD up gradation - DOS command(Internal and external).Preventive maintenance-system usage.

UNIT V TROUBLE SHOOTING

Computer faults-nature of faults -types of faults -diagnostic programs and tools-fault elimination-systematic trouble shooting procedure mother board problem-serial port problems-FDC, HDC, display problems- display adapter-printer problem -monitor problems, HDC,FDC problems.

REFERENCE BOOKS:

1. B.Govindaraulu - "IBM PC and Clones", Tata McGraw Hill Co.1995.
2. Robert C Brenner - "IBM PC Trouble shooting and Repair guide",

   BPB publications.
3. Winn & Rosch - "Hardware Bible" , Tec media.
4. Ray Duncan - "Dos Programming".
5. Zacker – “Upgrading & Trouble shooting Networks – the complete reference”, Tata McGraw Hill edition.
6. Meyers – “Introduction to PC Hardware and Trouble shooting”, Tata McGraw Hill editions.

ELECTIVE : MULTIMEDIA SYSTEMS

UNIT I	Introduction – Branch Overlapping Aspects of Multimedia Content – Global Structure – Multimedia Literature . Multimedia – Media and Data Streams – Medium .
UNIT II	Sound/Audio : Basic Sound Concepts – Music –Speech , Images and Graphics : Basic Concepts – Computer Image Processing – Video and Animation : Basic Concepts – Television – Computer Based Animation .
UNIT III	Data Compression : Storage Space – Coding Requirements – JPEG – MPEG – DVI , Optical Storage Media , Computer Technology – Multimedia Operating System.
UNIT IV	Networking System : Layers , Protocols and Services , Networks , Metropolitan Area Networks , WAN , Multimedia Communication System
UNIT V	User Interfaces, Synchronization , Abstraction for Programming : Abstraction Levels – Libraries – System Software – Toolkit – Higher Programming Languages . Multimedia Application : Introduction – Media Population – Media Compos ion – Media Communication – Trends.
Text Book(s)	Ralf Steinmetz & Klara Nahrstedt – " Multimedia Computing , Communication & Applications " Pearson Education.

ELECTIVE – ANIMATION TECHNIQUES

UNIT-I: What is mean by Animation – Why we need Animation – History of Animation – Uses of Animation – Types of Animation – Principles of Animation – Some Techniques of Animation – Animation on the WEB – 3D Animation – Special Effects - Creating Animation.

UNIT-II: Creating Animation in Flash**:** Introduction to Flash Animation – Introduction to Flash – Working with the Timeline and Frame-based Animation - Working with the Timeline and Tween-based Animation – Understanding Layers - Actionscript.

UNIT-III: 3D Animation & its Concepts – Types of 3D Animation – Skeleton & Kinetic 3D Animation – Texturing & Lighting of 3D Animation – 3D Camera Tracking – Applications & Software of 3D Animation.

UNIT-IV: Motion Caption – Formats – Methods – Usages – Expression – Motion Capture Software's – Script Animation Usage – Different Language of Script Animation Among the Software.

UNIT-V: Concept Development –Story Developing –Audio & Video – Color Model – Device Independent Color Model – Gamma and Gamma Correction - Production Budgets - 3D Animated Movies.

TEXT BOOK:

1. **PRINCIPLES OF MULTIMEDIA – Ranjan Parekh**, 2007, TMH. (Unit I, Unit V)

2. **Multimedia Technologies – Ashok Banerji, Ananda Mohan Ghosh – McGraw Hill Publication.** (Unit II: Chapter 10)

Text for Unit III, IV & V is appended.

ELECTIVE : BUSINESS INTELLIGENCE

Unit I
Introduction to business intelligence and business decisions – Data warehouses and its role in Business Intelligence – Creating a corporate data warehouse – Data Warehousing architecture – OLAP vs. OLTP - ETL process – Tools for Data Warehousing – Data Mining – KDD Process
Unit II
Applications of Data Mining in Business – Data Mining Techniques for CRM – Text Mining in BI - Web Mining – Mining e-commerce data – Enterprise Information Management - Executive Information Systems
Unit III
Business Intelligence – Function, Process, Services & Tools - Application in different domains – Operational BI - Customizing BI – Managing BI projects vs. Traditional IS projects – Managing BI projects – Best Practices in BI Strategy
Unit IV
Knowledge Management – Definition – Data Vs. Information Vs. Knowledge – The ten key principle of KM – Knowledge Management Architecture – Knowledge Management Vs. Knowledge Processing – KM approaches – KM Tools – KM Infrastructure – KM models - KM Strategies
Unit V
Web Analytics and Business Intelligence – eCRM - Case Study: Web Trends – Boeing – EverBank – China Eastern
Text Book(s)
1. M.Raisinghani - Business Intelligence in the Digital Economy - Opportunities, Limitations and Risks, Idea Group publications, 2004.
2. Introduction to Data Mining and its Applications, Sumathy, Sivanandam, Springer Verlag, 2006
3. Knowledge Management and Business Innovation, Yogesh Malhotra, Idea Group, 2001.

ELECTIVE – : NETWORK SECURITY & ADMINISTRATION

UNIT I	**Attacks on computers and computer security** : Introduction –Need for security – Security approaches -principles of security –Types of attacks. **Cryptography** : Concepts and techniques - - introduction – plain text and cipher text –substitution techniques - transposition techniques – encryption and decryption – symmetric and asymmetric key cryptography – steagnograpgy – key range and key size – possible types of attacks
UNIT II	**Symmetric Key Algorithms and AES** : Introduction - Algorith Types and modes – An overview of symmetric key cryptography – Data encryption Standard (DES) – International Data Encryption Algorithm (IDEA) – RC4 – RC5 – Blowfish – Advanced Encryption Standard (AES) . **Asymmetric Key Algorithms**: Digital Signature and RSA : Introduction – brief history of Asymmetric Key cryptography – An Overview of Asymmetric Cryptography - The RSA algorithm – Symmetric and asymmetric cryptography together – digital signatures – Knapsack algorithm – Some other algorithms.
UNIT III	**Digital certificate and Public Key Infrastructure (PKI)** : Introduction – digital certificates – private key management- the PKIX model – Public key cryptography standards – XML, PKI and Security – Creating digital certificates using JAVA. **Internet Security Protocols :** Introduction – basic concepts – Secure Socket Layer – (SSL) – Transport Layer Security(TLS) – Secure Hyper Text Transfer Protocol (SHTTP) – Time Stamping Protocol (TSP) – Secure Electronic Transaction (SET) – SSL Versus SET – 3-D secure Protocol – Electronic Money - - Email security – Wireless Application Protocol (WIP) Security - Security in GSM –Security in 3G.
UNIT IV	**User Authentication and Kerberos :** Introduction – Authentication basics - Passwords – Authentication Tokens – Certificate based Authentication – biometric authentication – kerberos – Key distribution cetre – Security handshake Pitfalls – Single sign on (SSO) Approaches . **Cryptography in JAVA, .NET, and Operating System** : Introduction – Cryptographic Solution using JAVA – Cryptographic Solutions using Microsoft .NET Framework – Cryptographic Toolkits – Security and Operating Systems – Database Security .
UNIT V	**Network Security Firewalls and Virtual Private Networks** (VPN) : Introduction – Brief introduction to TCP/IP – Fire walls – IP security – Virtual Private networks (VPN) – Intrusion. **Case Studies on Cryptography and Security** : Introduction – Cryptographic Solutions a Case Study – SSO – Secure inter brange payment Transactions – DOS Attacks – IP Spoofing Attacks – Cross Site Scripting Vulnerability (CSSV) – Contract signing – secret Splitting - virtual elections – secure multiparty calculations – creating a VPN – Cookies and Privacy.
Text Book(s)	ATUL KAHATE, :CRYPTOGRAPY And NETWORK SECURITY, Second Edition , Tata McGraw-Hill publishing , 2003

ELECTIVE: MOBILE COMPUTING

UNIT I	Introduction: Mobility of Bits and Bytes –Wireless The Beginning – Mobile Computing – Dialogue Control – Networks – Middleware and Gateways – Application and services- Developing Mobile computer Applications – security in mobile computing – Standards _ Why is it necessary – Standard bodies. MOBILE COMPUTTING ARCHITECTURE: History of computers and Internet – Architecture for mobile computing – Three-tier architecture – Design considerations for mobile computing – Mobile computing through Internet – Making exiting applications mobile enabled
UNIT II	MOBILE COMPUTING THROUGH TELEPHONY: Evaluation of telephony – Multiple access procedures – Mobile computing through telephone – IVR Application – Voice XML – TAPI
UNIT III	EMERGING TECHNOLOGIES: Blue Tooth – RFID – WiMAX – Mobile IP – IPv6 – Java Card. GSM : Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency allocations – Authentications and Security. SMS
UNIT IV	GPRS – GPRS and packet data network – GPRS network architecture – GPRS network operations – Data services in GPRS – Application for GPRS- Limitations – Billing and Charging. WAP : MMS – GPRS Applications
UNIT V	CDMA and 3G: Spread spectrum technology – Is 95 – CDMA vs GSM – Wireless Data – Third generation networks – Applications on 3G WIRELESS LAN: Wireless LAN advantages – IEEE 802.11 standards – Architecture – Mobile in Wireless LAN – Deploying wireless LAN – Mobile adhoc networks and sensor networks – Wireless LAN Security –WiFi vs 3G
Text Book(s)	MOBILE COMPUTING, Asoke K Talukder , Roopa R Yavagal, TMH, 2005

ELECTIVE/SKILL : INTERNET PROGRAMMING

UNIT I
Basics of Internet communication - Hardware elements associated with internet - Internet Services - Internet Protocols - TCP/IP, UDP, HTTP - other Protocols - Telnet - Gopher - Mail and its types - FTP - Remote access and Transaction - Web Indexes - Search Engines.

UNIT II
Introduction to HTML - Tags and Documents - Link documents using Anchor Tags - Images and Pictures - Tables -HTML Forms - Frames - Framesets.

UNIT III
Introduction to Scripting - Java Script - Data types - Operators - Variables - Conditional Statements - Functions -Objects - Document object - Image Object - Event Handling - Introduction to VBScript and Perl Script.

UNIT IV
Introduction to XML - Well formed XML - CSS - XSL - Valid XML - DTD - XSD - Introduction to DOM and SAX.

UNIT V
Introduction to Dynamic web applications -Active Server Page Basics - ASP Object Model -Collections - Introduction to PHP.

Text Book(s)
1. Deitel & Deitel ,Internet and www How to program? Prentice Hall 2000.
2. Beginning XML, David Hunter et al., Wrox Publications 2000.

Reference Book(s)
1. Daniel C.Lynch, Marehall T. Rose. Internet systems Harbook , Addison Wesley 1993.
2. Thomas Penny, How to do everything with HTML.

ELECTIVE : COMPONENT TECHNOLOGY

SUBJECT DESCRIPTION : This course presents the middle ware technologies that are available and explaining how this can be used for real time applications.

GOALS : To enable the students to learn the basic functions and concepts of COM, DCOM and CORBA.

OBJECTIVES :

On successful completion of the course the students should have

Understood the facilities available in component technology

Learnt how this can be used for real time application.

UNIT I
Information system - Analyzing the Scenario challenges - CORBA overview -

Concepts - Overview of CORBA IDL - IDL Tutorial Conversion of 00 design to IDL - IDL Guidelines - Overview of CORBA and Standard Object model - Architecture - Clients & Object Implementation interface and implementation.

UNIT II

Language mapping - Portability and inter operability - OLE integration - CCRBA services - Information Management Services - Task Management- System Management - Infrastructure of Services.

UNIT Ill

Facilities and domains - horizontal - Vertical facilities - Leveraging the OMG Process - Relationship with other technologies.

UNIT IV

The CORBA migration process - software Architecture - Applications Design using software Architect ii

UNIT V

Migration case studies - Problem and Objective standard based Profile - Project context - Business objects and Process - Interface migration.

REFERENCE BOOK:

I. Inside CORBA — Distributed Object Standards and Applications Thomas J. owtray, William A. Roh. Addison Wesley 1999.

ELECTIVE :RECENT TRENDS IN ENTERPRISE INFORMATION TECHNOLOGY

Unit I

BUSINESS PROCESS RE-ENGINEERING : Innovative or Perish – Waves of Innovation – What a Difference a Century Can Make? – Value Innovation & BPR – Change Management – "BPR" Philosophy – Models of "BPR".

Unit II

SUPPLY CHAIN MANAGEMENT **:** Introduction to SCM – Evolution of Supply Chain Management – E-Business & Drivers of E-Business – Concept of Supply Chain Management – Understanding the SCM.

Unit III

SUPPLY CHAIN MANAGEMENT **:** SCM Frame Work – EDI, IOS, ECSS – E-Sourcing and Out-sourcing.

ENTERPRISE RESOURCE PLANNING**:** Introduction to ERP – Evolution of ERP – Materials Requirement Planning (MRP) – Manufacturing Resource Planning System (MRP II) and Money Resource Planning (MRP III).

Unit IV

ENTERPRISE RESOURCE PLANNING**:** ERP Packages – SAP – Relationship of ERP with other components of EIS – ERP implementation ERP Packages – SAP – Relationship of ERP with other components of EIS – ERP implementation – Personnel involved in ERP implementation.

Unit V

CUSTOMER RELATIONSHIP MANAGEMENT **:** Introduction to customer Relationship Management (CRM) – Evolution of CRM – Understanding CRM – Framework of CRM – Models of CRM – CRM Technology – Integration with other Enterprise Wide System – CRM in Practice.

Books for Study :

1. "ENTERPRISE WIDE INFORMATION SYSTEMS", K. Balasubramaniyan, S.Usha Priya, K.Hema, IInd Edition – 2002.

Reference Book:

Using Information Technology – William, Sawyer, Hetisn, TMH – III Edition.

ELECTIVE : DISTRIBUTED COMPUTING

Subject Description

This Course presents the distributed computing techniques emphasizing the client server model

Goals

To enable the students to learn the concepts of distributed computing

Objectives

On successful completion of the course the students should have:

- Understood the trends and principles of distributed computing

Contents

UNIT I

Distributed Systems: Fully Distributed Processing systems – Networks and interconnection structures – designing a distributed processing g system.

UNIT II

Distributed systems: Pros and Cons of distributed processing – Distributed databases – the challenges of distributed data – loading, factors – managing the distributed resources division of responsibilities.

UNIT III

Design considerations: Communication Line loading – line loading calculations- partitioning and allocation - data flow systems – dimensional analysis- network database design considerations- ration analysis- database decision trees- synchronization of network databases

UNIT IV

Client server network model: Concept – file server – printer server and e-mail server

UNIT V

Distributed databases: An overview, distributed databases- principles of distributed databases – levels of transparency- distributed database design- the R* project techniques problem of heterogeneous distributed databases

Reference:

1. John a. Sharp, "An introduction to distributed and parallel processing g" *Blackwell Scientific Publication(Unit I & III)*
2. Uyless D. Black, "Data communication and distributed networks"(unit II)
3. Joel M.Crichllow "introduction to distributed & parallel computing (Unit IV)
4. Stefans Ceri, Ginseppe Pelagatti "Distributed database Principles and systems" McGraw Hill

ELECTIVE :Middleware Technologies

Unit I
Client-Server architecture: 2-tier model – 3-tier model – n-tier model – J2EE architecture – DOTNET architecture – MVC architecture
Unit II
Présentation services: Servlets – JSP – Interaction services: RMI – CORBA – XML – JAXP - JMS – Data Management services: JDBC
Unit III
Component model: EJB : Session Beans : Stateless and Stateful – Entity Beans – CMP and BMP - Message Driven Beans
Unit IV
ASP.NET : Introduction – architecture – ASP.NET Runtime – Internet Information Services – Visual Web Developer Web Server – ASP.NET Parser – Assembly – Page class. Web Server Controls – HTML Controls – AdRotator and Calendar controls – Validation Controls – Security Management.
Unit V
ASP.NET and ADO.NET: System.Data, SqlClient and Xml namespaces – Provider objects and Consumer objects – Disconnected data access – GridView FormView. Web Services: Provider – WSDL – UDDI – SOAP – HTTP – Developing simple web services – Connecting a Web Service to a data source – Developing ASP.NET Clients for Web Services.
Text Book(s)
1. Justin Couch and Daniel H Steinberg, "J2EE bible", Willey India Pvt. Ltd, New Delhi, 2002. 2. Paul Tremblett, "Instant Enterprise Java Beans", TMH Publishing company, New Delhi, 2001

ELECTIVE: COMPUTER INSTALLATION AND SERVICING

Unit – I PC SYSTEM

Personal Computer System - Functional Blocks - System Unit - Display Unit - Keyboard.

INSIDE PC

Motherboard - BIOS - CMOS-RAM - Motherboard types – Processors – Chipsets – USB.

ON-BOARD MEMORY

PC's Memory Organization - Memory packaging - I/O Ports - USB Port.

Unit – II

Floppy Disk Drive and Controller - Hard Disk Drive and Controller, MMX – Multimedia Extensions.

Unit – III

Input Devices - Monitors and Display Adapters.

Unit – IV Output Devices

DOT Matrix Printer - Printer Controller - Laser Printer - Inkjet Printer.

Computer Installation

Power supply - PC Installation.

Unit – V

Trouble shooting and servicing

POST, Trouble shooting the mother board - Trouble shooting the Keyboard - Trouble shooting the disk devices - Trouble shooting the printer.

Maintenance

Diagnostic Software's - Data Security.

Computers and Communication

Networking – Modem - Internet.

Text Book:

Computer Installation and Servicing, Second Edition by D.Balasubramaniam, Tata McGraw-Hill, 2005.

ELECTIVE: COMPUTER AIDED DESIGN AND MANUFACTURING

UNIT – I:

Introduction: CAD/ CAM Defined – The Product Cycle and CAD/CAM – Automation and CAD/CAM – Organization.

Fundamentals of CAD: Introduction – The Design Process – The Application of Computers for Design – Creating the Manufacturing Data Base – Benefits of Computer-Aided Design.

UNIT –II:

Hardware in Computer-Aided Design: Introduction - The Design Workstation - The Graphics terminal - Operator input Devices- Plotters and Other Output Devices - The Central Processing Unit - Secondary Storage.

Conventional Numerical Control: Introduction **–** Basic Components of an NC System – The NC Procedure – NC Coordinate System – NC Motion Control Systems – Applications of Numerical Control – Economics of Numerical Control.

UNIT – III:

Robot Technology: Introduction – Robot Physical Configurations – Basic Robot Motions – Other Technical Features – Programming the Robot – Robot Programming Languages – End Effectors – Work Cell Control and Interlocks – Robotic Sensors.

Robot Applications: General Considerations in Robot Applications – Material Transfer – Machine Loading - Welding - Spray Coating - Processing Operations - Assembly - Inspection.

UNIT – IV:

Group Technology: Introduction – Part Families – Part Classification and Coding **-** Three Parts Classification and Coding Systems – Group Technology Machine Cells – Benefits of group Technology.

Computer-Aided Process Planning: The Planning Function – Retrieval-Type Process Planning Systems – Generative Process Planning Systems – Benefits of CAPP – Machinability Data Systems – Computer-Generated Time Standards.

UNIT – V:

Production Planning and Control: Introduction – Traditional Production Planning and Control – Problems with Traditional Production Planning and Control – Computer-Integrated Production Management System – Cost Planning and Control.

Inventory Management and MRP: Introduction – Inventory Management – Material Requirements Planning – Basic MRP Concepts – Inputs to MRP – How MRP works – MRP Output Reports – Benefit Of MRP – MRP II:Manufacturing Resource Planning.

Text Books:

CAD/CAM Computer-Aided Design and Manufacturing, Mikell.P.Groover and Emory.W.Zimmers, Jr., Pearson Edition, 2003.

ELECTIVE I : E-COMMERCE

Subject Description : This Subject deals with the E-Commerce

Goal : To learn about E-Commerce

Objective : On Successful Completion of this subject the students should have:

- E-Commerce , E-Market , EDI , Business Strategies etc.,

UNIT I:

Introduction to E-Commerce : The Scope of E-Commerce – Definition-E-Commerce & the Trade Cycle – Electronic Market – Electronic Data Interchange – The Internet Commerce – The E-Commerce in Perspective. Business Strategy : The Value Chain – Supply Chains – Porter's Value Chain Model – The Inter Organizational Value Chain.

UNIT II:

The Introduction to Business Strategy – Strategic Implications of IT – Technology – Business Environment – Business Capability – Existing Business Strategy – Strategy Formulation & Implementation Planning – e-Commerce Implementation -Commerce Evaluation. The Inter Organizational Transactions – The Credit Transaction Trade Cycle. A Variety of Transactions – Pens & Things.

UNIT III:

E-Markets : Markets – E-Markets-Usage of E-Markets-Advantages & Disadvantages of E-Markets . EDI : Introduction – Definition - Benefits of EDI – EDI Standards – EDI Communication EDI Implementation – EDI Agreement – EDI Security.

UNIT IV:

The Internet : The Internet – The Development of the Internet – TCP/IP – Internet Components – Uses of the Internet – A Page on the Web : HTML Basics – Introduction to HTML – Further HTML – Client Side Scripting – Server Side Scripting – HTML Editors & Editing – The Elements of E-Commerce : Elements – e-Visibility – The e-Shop – On line Payments - Delivering the Goods – Internet e-Commerce Security .

UNIT V:

E-Business : Introduction - The Internet Bookshops – Grocery Supplies - Software Supplies and Support – Electronic Newspapers – The Internet Banking - The Virtual Auctions – Online Share Dealing – Gambling on the Net – e-Diversity.

TEXT BOOK :

David Whiteley–"E-Commerce – Strategy, Technology & Applications " Tata McGraw-Hill.

REFERENCE BOOK:

Jeffrey F.Rayport,Bernard J.Jaworski –" Introduction to E-Commerce" – 2ND EDITION TMH.

ELECTIVE - DESIGN & ANALYSIS OF ALGORITHM

UNIT 1:
Algorithms – Conventions – writing structured programs – Analyzing algorithms – Sorting: Heap sort – Binary Search- Finding the maximum and minimum – merge sort – quick sort – Selection sort.

UNIT 2:
GREEDY METHOD: The general method – optional storage on tapes – Knap sack problems – Job sequencing with dead lines – optional merge patterns – minimum spanning trees – single source shortest paths.

UNIT 3:
DYNAMIC PROGRAMMING: The general method – Multistage graphs – All pairs shortest paths – optional binary search trees – O/I Knapsack – Reliability design the traveling salesman problem- game theory.

UNIT 4:
BACKTRACKING: The general method – The 8 queens problem – sum of subsets – graph coloring – Hamiltonian cycles – knapsack problem.

UNIT 5:
BRANCH & BOUND: The general method – O/I knapsack problem – Traveling salesperson – Efficiency considerations.

TEXT BOOK:
Fundamentals of Computer Algorithms – Ellis Horowitz and Sartaj Sahni Galgotia Publications. (Chapters 1 to 5,6.4,7 & 8)
****

ELECTIVE : SOFTWARE QUALITY ASSURANCE

Subject Description

This Course presents the essentials of Software Qulaity, Plan for SQA, Standards, Tools for SQA.

Goals:

To enable the students to learn the Concepts and Principles of SQA.

Objectives :

On successful completion of the course the students should have:

- Understood the principles of SQA
- Must be able to judge the quality of Softwares.

Content

UNIT I

Introduction to software quality – Software modeling – Scope of the software quality program – Establishing quality goals – Purpose, quality of goals – SQA planning software – Productivity and documentation.

UNIT II

Software quality assurance plan – Purpose and Scope, Software quality assurance management - Organization – Quality tasks – Responsibilities – Documentation.

UNIT III

Standards, Practices, Conventions and Metrics, Reviews and Audits – Management, Technical review – Software inspection process – Walk through process – Audit process – Test processes – ISO, cmm compatibility – Problem reporting and corrective action.

UNIT IV

Tools, Techniques and methodologies, Code control, Media control, Supplier control, Records collection, Maintenance and retention, Training and risk management.

UNIT V

ISO 9000 model, cmm model, Comparisons, ISO 9000 weaknesses, cmm weaknesses, SPICE – Software process improvement and capability determination.

REFERENCES

1. Mordechai Ben – Meachem and Garry S.Marliss, “Software Quality – Producing Practical, Consistent Software”, International Thompson Computer Press, 1997
2. Watt. S. Humphrey, “Managing Software Process”, Addison – Wesley, 1998.
3. Philip.B.Crosby, “Quality is Free : The Art of making quality certain”, Mass Market, 1992.

ELECTIVE : WIRELESS MOBILE COMMUNICATIONS

Subject Description - This Course presents the Wireless Mobile Communications.

Goals - To enable the students to learn the fundamentals of Wireless Transmission.

Objective

On successful completion of the course the students should have:

- Understood the wireless communication principles, wireless networking and wireless standards.

Contents

UNIT I

Introduction to Wireless Communication Systems: Evolution of Mobile Radio Communication - Applications - Comparison of common wireless Communication Systems - Trends in Cellular Radio and Personal Communications - Modern wireless Communication Systems.

UNIT II

Wireless Transmission: Frequencies for Radio transmission- Signals- Antennas - Signal Propagation – Multiplexing- Modulation- Spread Spectrum – **Medium access control**: Specialized MAC – SDMA- FDMA- TDMA - CDMA - FHMA - Radio Packet.

Tele Communication Systems : GSM - DECT - TETRA – UTMS-PACS - Personal Handy Phone System (PHS) - Pacific Digital Cellular (PDC) and IMT 2000.

UNIT III

The **Cellular Concept** - System Design fundamentals : Introduction - Frequency Reuse - Channel Assignment Strategies - Interference and System capacity - Trunking and Grade of Service - Improving coverage & Capacity in Cellular Systems.

UNIT IV

Wireless Networking: Introduction to wireless Networks - Differences between wireless and fixed telephone Networks - Development of Wireless Networks - Traffic Routing in Wireless Networks - Wireless Networks - Wireless Data Services –CCS- ISDN - Signaling system No: 7(SS7)- PCS / PCNs-_ Protocols for Network Access - Network Databases.

UNIT V

Wireless Systems and Standards : AMPS and ETACS - CDMA Digital Cellular standard (15 – 95) -Reverse CDMA channel - Scripting languages for Wireless Communication - An overview - components.

REFERENCE BOOKS :

1. .Odore W.Rapport - Wireless Communications - Principals and Practice , Second Edition , 2002, Pearson Education.
2. 2.Jochen Schillr - Mobile Communication, Addison Wesley, 2000.

3. Stallings – Wireless Communications & Networks, Pearson Education.
4. GARG – Wireless Network Evolution : 2G to 3G, Pearson Education.
5. Richharia – Mobile Satellite Communications : Principles and Trends, Pearson Education
6. Dornan – The Essential Guide to Wireless Communications Applications, Pearson Education

ELECTIVE : SOFTWARE ENGINEERING

Subject Description: This subject deals with Software Engineering concepts like Analysis, Design, Implementation, Testing and Maintenance.

Goal: Knowledge on how to do a software project with in-depth analysis.

Objective: To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.

- - - - -

UNIT-I: Introduction to Software Engineering: Definitions – Size Factors – Quality and Productivity Factors. **Planning a Software Project:** Planning the Development Process – Planning an Organizational Structure.

UNIT-II: Software Cost Estimation: Software cost Factors – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Estimation Costs.

UNIT-III: Software Requirements Definition: The Software Requirements specification – Formal Specification Techniques. **Software Design:** Fundamental Design Concepts – Modules and Modularization Criteria.

UNIT-IV: Design Notations – Design Techniques. **Implementation Issues**: Structured Coding Techniques – Coding Style – Standards and Guidelines – Documentation Guidelines.

UNIT-V: Verification and Validation Techniques: Quality Assurance – Walkthroughs and Inspections – Unit Testing and Debugging – System Testing. **Software Maintenance:** Enhancing Maintainability during Development – Managerial Aspects of Software Maintenance – Configuration Management.

TEXTBOOK:

1. **SOFTWARE ENGINEERING CONCEPTS – Richard Fairley,** 1997, TMH.

(UNIT-I: 1.1-1.3, 2.3-2.4 UNIT-II: 3.1-3.4 UNIT III: 4.1-4.2, 5.1-5.2

UNIT-IV: 5.3-5.4, 6.1-6.4 UNIT-V: 8.1-8.2, 8.5-8.6, 9.1-9.3)

REFERENCE BOOKS:

1. SOFTWARE ENGINEERING FOR INTERNET APPLICATIONS – Eve Anderson, Philip Greenspun, Andrew Grumet, 2006, PHI.

2. SOFTWARE ENGINEERING PROJECT MANAGEMENT – 2nd Edition**,** Wiley India.

3. SOFTWARE QUALITY ENGINEERING – Jeff Tian, Student edition, 2006, Wiley India.

ELECTIVE/SKILL- MM/ BCA :CASE TOOLS CONCEPTS AND APPLICATIONS

UNIT-I

Data Modeling: Business Growth-Organisational Model-Case Study of student MIS-What is the purpose of such Models-Understanding the business-Types of models-model development approach-the case for structural development-advantages of using a case tool.

System analysis and design-what is DFD-General Rules for Drawing DFD-Difference Between Logical data flow diagram and Physical data flow diagram-Software verses Information Engineering-How case tools store information.

UNIT-II

Approach used to solve the problem statement: How to deal with a problem statement-Data flow diagram for Payroll System-Presentation Diagram for Payroll System-sehematics of the model-Forms-Screens-Menu Screens-Dataentry Screens-Report Output Format-Utilities.

Installation of Ubridge and Synthesis: How to use the tools in Ubridge Systhesis for case-Installation of Ubridge Synthesis-Computer Aided Software Engineering-Getting Ubridge to work-Setup-Assign-Housekeep-The Ubridge page.

UNIT-III

Introduction to Ubridge: Introduction - Main flow of the system prototyping your Report-Introducing the Novice Model of the Operation.

Introducing Synthesis - Synthesis basic – Synthesis - Menu Drawing the screen-Requirement Definition-Diagram-Data Dictionary-Document-Synthesis Main Administration - Synthesis reference - importing and exporting screen.

UNIT-IV

Diagram definition tool: Introduction-Starting DDT-Drawing your own Icon - Defining the connection rules-Rebuilding your icon.

Object oriented methodologies: Rumaugh Et.Al's object modeling techniques-The Booch methodology –The Jacobson Et.Al Methodologies-Pattern-Frame works-The Unified Approach.

UNIT-V

Introduction to UML-UML Diagram-Class Diagram-Use Case Diagram-Interaction Diagram-Sequence Diagram-Collobration Diagram-State Chart Diagram-Activity Diagram-Component Diagram-Deployment Diagram.

Text books: 1) Case Tools Concepts and Applications.-Ivan N Bayross,BPB Publications

2) Object Oriented System Development using the unified modeling language-Mc GraHill International editions.

Reference book:

1. Software engineering a practioner's approach-roger s pressman- Mc GraHill International Editions.

ELECTIVE : FLASH

UNIT I :

An Introduction to Flash – What's New in Flash Mx 2004 – Simple Drawing Techniques –Adding Some Easy Animation – Learning about the Tools .

UNIT II :

Using the TimeLine – Controlling Drawn Objects – Creating Symbols – Using the Library – Importing & Optimizing Graphics.

UNIT III :

Adding & Optimizing Sounds – Importing & Using Video – Understanding Tweens - Adding Interactions.

UNIT IV:

Using Masking Techniques – Guiding Animations – Optimizing Your Movies – Creating Flash Movies - Creating Flash Movies for the Pocket PC .

UNIT V:

An Action Script Primer – Applying Action Script – Intermediate Action Script Examples .

TEXT BOOK:

Brian Underdahl – " The Complete Reference – Macromedia Flash Mx2004 " 2nd edition – TMH.

Reference Books

1. FLASH MX 2004 , Thyaghraran Anbumani , TMH .

ELECTIVE : 3Ds MAX ANIMATION

UNIT I :

Introducing Animations – Types of Animations – Animation Methods – Storyboarding - Introducing 3Ds Max – Interface Basics – Animation Tools & Controls – Creating a Simple Animation – Modifiers in Animations – Applying Modifiers to Animations – Controllers in Animations – Applying Controllers Using the Motions Panel – Applying Controllers Using the Track View Dialog Box.

UNIT II :

Animating using Constraints – Constraints in Animations – Applying Constraints to Animations – Introducing a Hierarchy – Animating Hierarchies – Particle Systems – Basics of Particle System – Creating Particle Systems in 3Ds Max – Types of Particle Systems in 3Ds Max – Creating Basic Particle Systems – Creating Advanced Particle Systems.

UNIT III:

Space Warps and Gizmos – Space Warps – Types of Space Warps in 3Ds Max – Applying Space Warps – Creating a Dynamic Simulation in 3Ds Max – Gizmos – Creating Gizmos – Animating with Lights – Lights in 3Ds Max –Adjusting Light Parameters – Additional Light Controllers – Animating Lights – Applying Lights to Create Animation.

UNIT IV:

Animating with Cameras – Types of Cameras – Camera View Port – Camera Parameters – Cameras in Animations – Animating with the Target and Free Cameras – Camera Matching.

UNIT V:

Rendering Animations – Rendering – Rendering Methods – Render Scene Dialog Box – Rendering Tools – Rendering an Animation – Previewing Animations – Using the RAM Player – Adding Effects to Animations – Environments Effects – Rendering Effects – Video Post .

Text Book :

3D Animation – An overview – Prentice Hall India.

Reference Books

1. George Avgerakis,. " Digital Animation Bible", TMH, 2005.
2. Barrett Fox. " 3 D's Max 6 Animation ", TMH , 2005.

ELECTIVE : SOFTWRE PROJECT MANAGEMENT

Subject Description: This subject deals with various Techniques for Software Project Management.

Goal: Enables to have sound knowledge on Software Project Management.

Objective: To inculcate knowledge on how to manage a Software Project.

UNIT-I: Introduction to Software Project management: Introduction – Why is Software project management is important? – What is a project? – Software project versus other types of project – Contract Management and technical project management – Activities covered by software project management – plans, methods, methodologies – some ways of categorizing software projects. Stepwise: an overview of project planning. Programme Management and Project Evaluation: Programme Management – Managing the Allocation of resources within programmes – strategic programme management – creating a programme – aids to programme management – Benefits Management – Evaluation of Individual projects –

technical assessment – cost-benefit analysis - cash flow forecasting – cost-benefit evaluation techniques – risk evaluation.

UNIT-II: Software Effort Estimation: Where are estimation done? – Problem with over and under-estimates – basis for software estimating – software effort estimation techniques – expert judgment – estimating by analogy. Activity Planning: The objectives – When to plan? – Project schedules – project and activities – sequencing and scheduling activities – Network Planning models – formulating a network model – adding time dimension – forward pass – backward pass. Risk Management: Risk – Categories – Dealing with risk – Risk identification, assessment, planning and management – Evaluating risk to schedule.

UNIT-III: Resource Allocation: Introduction - Nature of resources – identifying the resource requirements – scheduling resources – creating critical path – counting the cost – being specific – publishing the resource schedule – cost schedules – scheduling the sequence. Monitoring and Control: Creating framework – collecting the data – visualizing progress – cost monitoring – earned value analysis – prioritizing monitoring – getting the project back to target – change control.

UNIT-IV: Managing Contracts: ISO 12207 approach – supply process – types of contract – stages in contract placement, management – acceptance. Managing People and Organizing Terms: understanding behavior – organizational behavior – selecting the right person for the job – instruction in the best methods – Motivation – Working in groups – becoming a team – decision making – Leadership – organizational structures – dispersed and virtual teams - influence of culture – stress – health and safety.

UNIT-V: Software Quality: The place of software quality in project planning – importance of software quality – defining software quality – ISO 9126 - practical software quality measures – product vs process quality management – external standards – techniques to help enhance software quality- quality plans. Small Projects: Introduction – Some problems with student projects – content of a project plan – conclusion.

TEXTBOOK:

1. SOFTWARE PROJECT MANAGEMENT – Bob Hughes & Mike Cotterell, 4th ed, PHI.

ELECTIVE : CLIENT/SERVER COMPUTING

Subject Description: This subject deals with concepts of Client / Server computing. Also it deals with various components of Client / Server Applications.

Goal: Knowledge on Client / Server Concepts and various components of client / server Applications.

Objective: To inculcate knowledge on Client / Server concepts.

- - - - -

UNIT-I: Client / Server Computing – Advantages of Client / Server Computing – Technology Revolution – Connectivity – Ways to improve Performance – How to reduce network Traffic.

UNIT-II: Components of Client / Server Applications – The Client: Role of a Client – Client Services – Request for Service. Components of Client / Server Applications – The Server:

The Role of a Server – Server Functionality in Detail – The Network Operating System – What are the Available Platforms – The Server Operating system.

UNIT-III: Components of Client / Server Applications – Connectivity: Open System Interconnect – Communications Interface Technology – Inter-process communication – WAN Technologies.

UNIT-IV: Components of Client / Server Applications – Software. Components of Client / Server Applications – Hardware.

UNIT-V: Components of Client / Server applications – Service and Support: System Administration. The Future of Client / Server Computing: Enabling Technologies – Transformational Systems.

TEXTBOOKS:

1. CLIENT / SERVER COMPUTING – Patrick Smith, Steve guenferich , 2nd edition, PHI.

(Chapters 1-8 & 10)

Reference Book :

1."Robert Orfali, Dan Harkey, Jeri edwards: the essential client/server survival guide", II edition galgotia publication private limited.

2."Dewire and Dawana Travis "Client/ Server Computing ", TMH.

ELECTIVE : SOFTWARE TESTING

Subject Description: This subject deals software testing concepts like unit-wise testing, integration testing and acceptance testing.

Goal: Knowledge on software testing and how to test the software at various levels.

Objective: To inculcate knowledge on Software testing concepts.

- - - - -

UNIT-I: Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. **White-Box Testing**: Static Testing – Structural Testing –Challenges in White-Box Testing.

UNIT-II: Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - **Integration Testing:** Integration Testing as Type of Testing – Integration Testing as a Phase f Testing – Scenario Testing – Defect Bash.

UNIT-III: System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT-IV: Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. **Regression Testing:** What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT-V: Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. **Test Metrics and Measurements:** Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TEXTBOOKS:

1. **SOFTWARE TESTING Principles and Practices – Srinivasan Desikan & Gopalswamy Ramesh,** 2006, Pearson Education.

(UNIT-I: 2.1-2.5, 3.1-3.4 UNIT-II: 4.1-4.4, 5.1-5.5 UNIT III: 6 .1-6.7

(UNIT IV: 7.1-7.6, 8.1-8.5 UNIT-V: 15.1-15.6, 17.4-17.7)

REFERENCE BOOKS:

1. EFFECTIVE METHODS OF SOFTWARE TESTING–William E.Perry, 3rd ed, Wiley India.

2. SOFTWARE TESTING – Renu Rajani, Pradeep Oak, 2007, TMH.

ELECTIVE 1 : INTRODUCTION TO COMPILER DESIGN

UNIT I
Introduction to Compliers: Compliers and Translator – Need of Translator – The structure of a Complier – Lexical analysis – Syntax analysis – Intermediate code generation – optimization – code generation – Complier – writing tools. Finite automata and lexical Analysis: The role of the lexical analysis – A simple approach to the design of lexical analyzers- Regular expressions to finite automata – Minimizing the number of states of a DFA.

UNIT – II
The Syntactic specification of programming languages: context free grammars – derivations and parse trees – capabilities of context free grammars. Basic parsing techniques: Parsers – shift – reduce parsing – operator – precedence parsing – top down parsing – predictive parsers.

UNIT – III
Syntax – directed translation: syntax – directed translation schemes – implementation of syntax – directed translators – intermediate code – postfix notation – parse trees and syntax trees – 3 address code – quadruples and triples – translation of assignment statements – Boolean expressions – statements that alter the flow of control. Symbol tables: the contents of a symbol table – data structures for symbol table – representing scope information.

UNIT – IV

Run time storage administration: Implementation of a simple stack allocation scheme – implementation of block-structured languages – storage allocation in block structured languages. Error deduction and recovery: errors – lexical phase errors – syntactic phase errors – semantic errors.

52

UNIT – V

Introduction of code optimization: The principle sources of optimization – loop optimization – the DAG representation of basic blocks – value numbers and algebraic laws – Global data flow analysis. Code generation: Object programs – problems in code generation – a machine model – a simple code generator – register allocation and assignment – code generation from DAG's – peepholes optimization.

BOOK FOR STUDY

—Principles of Complier Design by Alfred V.Aho, Jeffrey D.Ullman , Narosa Pub House.

ELLECTIVE - PHP & SCRIPTING LANGUAGES

UNIT I:

VB Script and Java Script: Language structure - control structure - Procedures and functions - Error handling.

UNIT II:

VB Script: Input & Output - Data Validation -Integration with Forms – Activex Control & Scripting

UNIT III:

Java Script: Form Validation – SSI and Cookies – Frames and Windows – MIME Types - Plugins

UNIT IV

PHP: Server side scripting Language: Basic syntax - Types - Variables - Constants - Expressions - Operators - Control Structures

UNIT V

PHP : Functions - Classes and Objects - HTML forms - HTTP authentication with PHP - Cookies - Handling file uploads - Using remote files - Connection handling - Database Connections.

TEXT BOOKS:

1. Christopher J.Goddard, Mark White, "Mastering VB Script", Galgotia publications, New Delhi.
2. Lee Purcell, Mary Jane Mara, "The ABCs of Javascript",
3. Steven Holzner, "PHP: The Complete Reference"

ELECTIVE/SKILL : .NET PROGRAMMING

UNIT I

Introduction to .Net: .net framework- difference between VB6 and VB.Net-Object-Oriented programming and VB.Net-Data types-Variables-Operators-Arrays-Conditional logic.

UNIT II

Procedures- Dialog boxes- File IO and System objects- Error handling- Namespaces-Classes and Objects- Multithreading-Message Queue- Programming MSMQ.

UNIT III

VB.Net IDE-Compiling and Debugging-Customizing- Data access: ADO.Net- Visual studio .Net and ADO.Net. Windows Forms: Controls-Specific controls- Irregular forms.

UNIT IV

Vb.Net and web: Introduction to ASP.Net page framework- HTML server controls-Web controls- Validation controls- Events-CSS- State management- Tracing- Security.

UNIT V

Web Services: Introduction- Infrastructure- SOAP-Building web services- Deploying and publishing web services- Finding and consuming web services.

Text Book:

1. Bill Evjen, Jason Beres, et.al, "Visual Basic .Net programming", Wiley Dreamtech India (p) Ltd. ISBN 81-265-0254-1. (Chapters: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 25, 26, 27, 29, 31, 32, 33, 34, 35, 36, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 50).

References:

1. Fergal Grimes, "Microsoft .NET for programmers", shroff publishers & distributors (p) Ltd. ISBN 81-7366-540-0.
2. Thuan Thai & Hoang Q.Lam, ".NET Framework essentials", shroff publishers & distributors (p) Ltd. ISBN 81-7366-654-7

BHARATHIAR UNIVERSITY: COIMBATORE-641 046

B.Sc. CS/IT/CT/SS/MM/CSA &BCA

(For the students admitted from the academic year **2011-2012** and onwards)

CBCS PATTERN

SKILL BASED SUBJECTS

Skill-1 CS :SOFTWARE ENGINEERING & SOFTWARE PROJECT MANAGEMENT

UNIT I

Introduction –S/W Engineering Paradigm – life cycle models (water fall, incremental, spiral, WINWIN spiral, evolutionary, prototyping, object oriented) - system engineering – computer based system – verification – validation – life cycle process – development process –system engineering hierarchy.

UNIT II

Functional and non-functional - user – system –requirement engineering process – feasibility studies – requirements – elicitation – validation and management – software prototyping – prototyping in the software process – rapid prototyping techniques – user interface prototyping -
S/W document. Analysis and modeling – data, functional and behavioral models – structured analysis and data dictionary. software maintenance – Architectural evolution. Taxonomy of CASE tools.

UNIT III

Software Configuration Management – Definitions and terminology – processes and activities – Configuration audit – Metrics – Software Quality assurance – definitions – quality control and assurance – SQA Tools – Organization of Structures - Risk Management – Risk Identification, quantification Monitoring – Mitigation.

Project initiation – Project Planning and tracking – what, cost, when and how – organizational processes – assigning resources – project tracking – project closure – when and how.

UNIT IV

Software requirements gathering – steps to be followed – skills sets required – challenges – metrics – Estimation 3 phases of estimation – formal models for size estimation – translating size estimate to effort schedule estimate, metrics – Design and Development phases – reusability, Technology choices, Standards, Portability user interface – testability – diagonosability etc.

UNIT V

Project Management in testing phase – in the maintenance phase – Impact on internet on project Management.

Text Books:

1. Roger S.Pressman, Software engineering- A practitioner's Approach, McGraw-Hill International Edition, 6th edition, 2007.
2. Gopalaswamy Ramesh, "Managing Globle Software Projects" Tata McGraw Hill Publishing Company Ltd, New Delhi, 2002

REFERENCE BOOK

1. Bob Hughes and Mike Cotterell "Software Project Management"2nd edition, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2002.

SKILL2 - CS :SPM LAB

1. Preparation of Project Management Plan.
2. Using any of the CASE tools, Practice requirement analysis and specification for different firms.
3.Case study of cost estimation models.
4. Practice object oriented design principles for implementation.
5. Practice function oriented design.
6. Practice creating software documentation for the Analysis phase of software development life cycle for a real time application.
7. Practice creating software documentation for the Development phase of software development life cycle for a real time application.
8. Practice creating software documentation for the Implementation phase of software development life cycle for a real time application.
9. Practice creating software documentation for the Testing phase of software development life cycle for a real time application.
10. Simulate a tool for path testing principles.
11. Simulate a tool for testing based on control structures.
12. Simulate a tool that reflects black box testing concepts

SKILL-3 – CS : SOFTWARE TESTING

Subject Description: This subject deals software testing concepts like unit-wise testing, integration testing and acceptance testing.

Goal: Knowledge on software testing and how to test the software at various levels.

Objective: To inculcate knowledge on Software testing concepts.

UNIT-I: Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing –Challenges in White-Box Testing.

UNIT-II: Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase f Testing – Scenario Testing – Defect Bash.

UNIT-III: System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT-IV: Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT-V: Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TEXTBOOKS:

1. SOFTWARE TESTING Principles and Practices – Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education.

(UNIT-I: 2.1-2.5, 3.1-3.4 UNIT-II: 4.1-4.4, 5.1-5.5 UNIT III: 6 .1-6.7

(UNIT IV: 7.1-7.6, 8.1-8.5 UNIT-V: 15.1-15.6, 17.4-17.7)

REFERENCE BOOKS:

1. EFFECTIVE METHODS OF SOFTWARE TESTING–William E.Perry, 3rd ed, Wiley India.

2. SOFTWARE TESTING – Renu Rajani, Pradeep Oak, 2007, TMH.

SKILL- 4 – CS : SOFTWARE TESTING LAB

Write at least 10 TEST CASES for the following programs. Test cases can be for Input data, Conditional expressions, control transfer, output, etc. Run-Test-Debug- until all the test cases are in success status. Marks distribution as follows:

1. List of Test Descriptions (at least 10) for the Program. (20%)

2. Test Cases (40%)

3. Program with all test case results success (30%)

4. Record (10%)

TEST CASE Example:

Test-Id	Test Description	Test Steps	Expected Output	Actual Output	Status
TC-01	Acceptance of 10 digit input data	Input 10 Digit Number	Accepting 10 digit number	Accepted 10 digit number	Success
TC-02	Non- acceptance of character data	Input a character data 'X'	Character X should not be accepted	Accepting Character data	Failure

Modify PIC X(10) into PIC 9(10) and then run program for Test-id TC-02 again

TC-02	Non- acceptance of character data	Input a character data 'X'	Character X should not be accepted	Character data not accepted	Success
TC-03	Digit sum of 10 digit is in single digit	Output data	Single digit sum	Single digit Sum	Success

SKILL-1: BSC IT : INTRODUCTION TO WEB DESIGN AND APPLICATIONS

UNIT I	**Fundamentals of Electronic Mail :** Introduction - Email :Advantages and Disadvantages - Userids, Passwords and Email addresses - Message Components - Message Composition - Mailer Features - E mail Inner Workings - Email Management - MIME Types . **Browsing and Publishing** ; Introduction – Browser bare bones – Coast – to – Coast surfing – Hyber Text Markup Languages – Web page installation – Web page set up – HTML formatting and hyper link creation
UNIT II	**The internet** : Introduction – internet defined – internet history – the way the internet works – internet congestion – Inter net culture – Business culture and the internet – collaborative computing and the internet . **World Wide Web** : introduction the web defined – web browser details – web writing styles – web presentation outline, design , and management – registering web pages
UNIT III	**Searching the world wide web** : introduction – directories , search engines and metasearch engines – search fundamentals – search strategies – how does a search engine works. **Telnet and FTP** : introduction – telnet and remote login – File transfer – Computer Viruses

UNIT IV	**Basic HTML** : introduction – semantic versus syntactic – based style types – headers and footers – lists – tables – debugging . **Advanced HTML :** introduction – frames – html forms – CGI scripts – dynamic documents – html tools – next generation html – cascading style sheets
UNIT V	**News groups, Mailing Lists, Chat rooms and MUDs** : introduction – news groups and mailing lists history – mailing list fundamentals – newsgroups and mailing lists availability – chat-rooms – MUDs. **Electronic Publishing :** introduction – electronic publishing advantages and disadvantages – copy right issues – project Gutenberg and on-line books – electronic journals , magazines and news papers – miscellaneous publishing issues.
Text Book(s)	Raymond Greenlaw, Ellen Hepp , Fundamentals of the INTERNET and the World Wide Web, Second Edition , Tata McGRAW –HillEdition, 2005

SKILL-2- BSC IT : HTML, XML, Java Scripts - LAB

Students are required to write code snippets, which covers the following objectives

1	Design Simple Web Pages using standard HTML tags like, HEAD, TITLE, BODY
2	Design HTML web pages, which make use of INPUT, META, SCRIPT, FORM, APPLET, BGSOUND, MAP
3	Working with various attributes of standard HTML elements
4	Using Java Script's Window and document objects and their properties and various methods like alert (), evaI (), Parselnt () etc. methods to give the dynamic functionality to HTML web pages
5	Writing Java Script snippet which make use of Java Script's inbulit as well as user defined objects like navigator, Date Array, Event, Number etc.

6	Write code which does the form validation in various INPUT elements like TextFiled, Text Area, Password, Selection list etc.
7	Writing XML web Documents which make use of XML Declaration, Element Declaration, Attribute Decelaration
8	Usage of Internal DTD, External DTD, Entity Declaration.

SKILL 4 :BSC IT : .NET LAB

1	Write a program to Detect Errors using Vertical Redundancy Check (VRC).
2	Write a program to Detect Errors using Longitudinal Redundancy Check (LRC).
3	Write a program to Detect Errors using Cyclic Redundancy Check (CRC).
4	Write a Socket program to implement Asynchronous Communication.
5	Write a Socket program to implement Isochronous Communication.
6	Write a program to implement Stop & Wait Protocol.
7	Write a program to implement Sliding Window Protocol.
8	Write a Socket Program to Perform file transfer from Server to the Client.
9	Write a program to implement the Shortest Path Routing using Dijkstra algorithm.
10	Write a Program to implement Remote Procedure call under Client / Server Environment

SKILL-1 – BSc CT : DATA COMMUNICATION AND NETWORKS

UNIT- I

Introduction to communications and Networking : Introduction – Fundamental concepts - Data communications – Protocols- standards - Standards organizations - Signal propagations- Analog and Digital signals- Bandwidth of a signal and a medium - Fourier analysis and the concept of bandwidth of a signal - The data transmission rate and the bandwidth.

Information encoding: Introduction – Representing different symbols- Minimizing errors- Multimedia – Multimedia and Data compression.

UNIT- II

Analog and digital transmission methods: Introduction - Analog signal, Analog transmission - Digital signal, Digital transmission - Digital signal , Analog transmission - Baud rate and bits per second - Analog signal, Digital (Storage and) transmission - Nyquist Theorem.

Modes of data transmission and Multiplexing: Introduction – Parallel and Serial communication - Asynchronous, Synchronous and Isochronous communication - Simplex, Half-duplex and Full-duplex communication – Multiplexing - Types of Multiplexing - FDM versus TDM.

Transmission Errors: Detection and correction : Introduction – Error classification – Types of Errors – Error detection.

UNIT- III

Transmission media: Introduction - Guided media - Un Guided media - Shannon capacity.

Network topologies, switching and routing algorithms: Introduction - Mesh topology - Star topology - Tree topology - Ring topology - Bus topology - Hybrid topology - Switching basics- Circuit switching – Packet switching - Message switching - Router and Routing – Factors affecting routing algorithms - Routing algorithm -Approaches to routing.

UNIT- IV

Networking protocols and OSI model: Introduction – Protocols in computer communications - The OSI model - OSI layer functions.

Integrated services digital networking (ISDN): Introduction – Background of ISDN - ISDN architecture – ISDN interfaces - Functional grouping – Reference points - ISDN protocol architecture - Broadband ISDN (B-ISDN).

of ATM – Packet size – Virtual circuits in ATM – ATM cells – Switching – ATM layers – Miscellaneous Topics.

Text book:

Data Communications and Networks, ACHYUT. S. GODBOLE, Tata McGraw-Hill Publishing Company, 2007.

SKILL-2 BSc CT : NETWORK LAB

1. Write a program to Detect Errors using Vertical Redundancy Check (VRC).
2. Write a program to Detect Errors using Longitudinal Redundancy Check (LRC).
3. Write a program to Detect Errors using Cyclic Redundancy Check (CRC).
4. Write a Socket program to implement Asynchronous Communication.
5. Write a Socket program to implement Isochronous Communication.
6. Write a program to implement Stop & Wait Protocol.
7. Write a program to implement Sliding Window Protocol.
8. Write a program to implement the Shortest Path Routing using Dijkstra algorithm.
9. Write a Socket Program to Perform file transfer from Server to the Client.
10. Write a Program to implement Remote Procedure call under Client / Server Environment

SKILL- **3 - BSc CT: NETWORK SECURITY AND MANAGEMENT**

UNIT I

Introduction: Why Network Security is needed – Management principles – Security principles - Network management - Security attacks – Qualities of a Good Network.

Organizational Policy and Security: Security policies, Standards and Guidelines – Information Policy – Security Policy - Physical Security – Social Engineering – Security Procedures – Building a Security Plan.

Security Infrastructure: Infrastructure Components – Goals of Security Infrastructure – Design Guidelines – Security Models.

UNIT II

Cryptography: Terminology and background – Data Encryption Methods – Cryptographic Algorithms- Secret Key Cryptography - Public key cryptography – Message Digest – Security Mechanisms – Speech Cryptography.

Hardware and Software Security: Hardware security – Smart Card – Biometrics – Virtual Private Networks (VPNs) - Trusted Operating Systems – Pretty Good Privacy (PGP) – Security Protocols.

Database Security: Introduction to Database – Characteristics of a Database Approach – Database Security Issues - Database Security – Vendor-Specific Security – Data Warehouse Control and Security.

UNIT III

Intrusion Detection Systems: What is not ad IDS – Infrastructure of IDS – Classification of Intrusion Detection Systems – Host-Based IDS – Network-Based IDS - Anomaly Vs Signature Detection – Manage an IDS – Intrusion Detection Tools – IDS Products and Vendors.

Network Security: Fundamental Concepts – Identification and Authentication – Access Control – A Model for Network Security – Malicious Software – Firewalls.

UNIT IV

Network Management: Goal of Network Management – Network Management Standards – Network Management Model – Infrastructure for Network Management - Simple Network Management Protocol (SNMP).

Security Management: Security Plan - Security Analysis - Change Management - Disaster Recovery - Systems Security Management - Protecting Storage Media- Protection of System Documentation -Exchanges of Information and Software – Security Requirements of Systems.

UNIT V

Electronic Mail Policy: Electronic Mail – What are the E-mail threats that organization's face - Why do you need an E-mail Policy - How do you create an E-mail Policy - Publishing the E-mail Policy - University E-mail Policy.

Security of Internet Banking Systems: Introduction Banking System – Security Problem – Methodology for Security Problem – Schematic flow of Internet Banking – A layered approach to security.

Text Books:

Network Security and Management, Brijendra singh, PHI 2007.

SKILL-4 - BSc CT: NETWORK SECURITY LAB

1. Write a program to encrypt the data using the encryption methods:

   (i) Substitution Ciphers
   (ii) Transposition Ciphers
   (iii)
2. Write a program to implement DES algorithm.

3. Write a program to implement the Public Key Cryptography using Diffie -Hellman Algorithm.

4. Write a program to implement the Public Key Cryptography using RSA algorithm.

5. Write a program to secure the Database using User Authentication Security.

6. Write a server security program for Dynamic Page Generation.

SKILL 1 BSC SS :WAP AND XML

UNIT I

The Rise of Mobile Data: Market Convergence Enabling Convergence – Key Services for the Mobile Internet. Overview of the Wireless Application Protocol: The Origins of WAP – Overview of the WAP Architecture – Components of the WAP Standard – Network Infrastructure Services Supporting WAP Clients – WAP Architecture Design Principles – Relationship to Other Standards.

UNIT II

The Wireless Markup Language: Overview – The WML Document Model – WML Authoring – URLs Identify Content – Markup Basics – WML – Basics – Basic Content – Events, Tashs and Bindings.

UNIT III

Variables – Other Content you can Include – Controls – Miscellaneous Markup – Sending Information – Application Security – Other Data: The Meta Element – Document Type
Declarations – Errors and Browser Limitations – Content Generation – WML Version Negotiation.

UNIT IV

User Interface Design: Making Wireless Applications, Easy to Use: Web Site Design: Computer Terminals Vs Mobile Terminals – Designing a Usable WAP Site – Structured Usability Methods – User Interface Design Guidelines – Design Guidelines for Selected WML
Elements.

UNIT V

Wireless Telephony Applications: Overview of the WTA Architecture – WTA Client Framework – WTA Server & Security – Design Considerations – Application Creation Toolbox
– Future WTA Enhancements.
The Mobile Internet Future: Better Content, Easier Access – Beyond Browsing – Beyond Cellular – Mobile Data Unleashed.

Text Books:

1. Sandeep Singhal, Thomas Bridgman, Lalitha Suryanarayana, Daniel Mauney, Jari Alvinen, David Bevis, Jim Chan, Stefan Hild, “The Wireless Application Protocol”, Pearson Education, 2003.

SKILL 2 BSc SS :XML LAB

1. Create a demo for XSLT.
2. Create a menu in XML.
3. Write an XML document to display your bio-data
4. Display XML information in Tree structure format.
5. Write a XML program to navigate the records in the file.
6. Write a program to save data to an XML file.
7. Write a program to show the function of CDATA.
8. Write a XML program to maintain the student database.
9. Write a program to generate XML file from the Database.
10. Write a XML program to implement the Internal DTD and External DTD. **ASP**
11. Write a program to load a text file into a div element with XML HTTP.
12. List data from an XML file with XML HTTP.

SKILL – 3 : BSc SS - ASP.NET

Unit I

Getting Setup - what is ASP.NET- Setting up for ASP.NET- The development environment – ASP & ASP.NET. An overview – ASP.NET Programming Languages. Programming Basics: Basics of Programming - Program Flow – Effective Coding Techniques –Designing Applications.

Unit II

How Dynamic Website Applications work- Processing ASP.NET with Visual basic. NET:VB.NET Programming Language Structures –Built in ASP.NET objects & Interactivity-
The response object –The ASP Server object.

Unit III

Web forms & ASP.NET:
Web forms- ASP.NET Configuration, Scope and State: ASP.NET and configuration- ASP.NET and state –The application object –ASP sessions – The session object.

Unit IV

ASP.NET objects and components:
The Scripting Object Model- Active Server Components and Controls –More Active Server Components.

Unit V

Web services & ASP. NET –WSDL & SOAP- Web services Background – ASP.NET &SQL server- using SQL server –using databases in ASP.NET applications- ActiveX data objects- the
ADO.NET objective model –coding structured query language.

TEXT BOOKS:

1.Dave Mercer, “ASP. NET A Beginner’s Guide”, Tata McGraw –Hill Pub. Company Ltd, 2002
2.Matt J. Couch, “ASP. NET and VB. NET Web programming “, Pearson Education, 2002.
3..Kirk Allen Evans, Ashwin Kamanna, Joel Mueller, “XML and ASP.NET”, Pearson Education, 2002.

SKILL 4 : BSc SS :ASP.NET LAB

1. Write a program to display the following feedback form.
The different options for the list box must be ASP-XML, DotNET, JavaPro and Unix,C,C++. When the
Submit Form button is clicked after entering the data, a message as seen in the last line of the above figure must be displayed.

2.Write a program to display three images in a line. When any one of the images is clicked, it must be displayed below. On clicking the displayed image it must be cleared. The screen must look as in the figures given below:

3.Write a simple ASP.NET program to display the following Web Controls:
- A button with text "click me". The button control must be in the center of the form.
- A label with a text hello
- A checkbox.

The form name must be Web Control

4.Write a program to display "Welcome To Radiant" in the form when the "click" button is clicked. The form title must be ASP.NET.

5.Write a program that displays a button in green color and it should change into yellow when the mouse moves over it.

6.Write a program containing the following controls:
- A ListBox
- A Button
- An Image
- A Label

The listbox is used to list items available in a store. When the user clicks on an item in the listbox, its image is displayed in the image control. When the user clicks the button, the cost of the selected item is displayed in the control.

7.Write a JavaScript program to display a calendar with the following specifications:
- The width of the border is 10 units

- The border is set to inset style
- The cellpadding is set to 1
- The cellspacing is set to 4
- The height of the calendar is 300px
- The width of the calendar is 500px
- The Days are displayed as “Sun”, “Mon” etc.
- The first day of the week is Saturday
- The days are displayed in brown color
- The names of the next and previous months are displayed as full months
- The next and previous months are displayed in white color
- The days of other months are displayed in gray color
- The SelectionMode is set to DayWeekMonth
- The background color of the selected day(s) is lightblue
- The background color of the selector tab is lightgreen and its text is in black
- The current day is set to blue color and its text is made bold
- The background color of the title is green, its text is white and it is made bold

8.Write a JavaScript code that displays two advertisements alternately. When the user clicks on one of the advertisements, he/she is redirected to “www.amazon.com”, and the other advertisement redirects the user to “www.fabmart.com”. The weightage of the amazon advertisement is 50 and that of the other one is 40. The advertisement should be centered horizontally and should cover 60% of the width of the screen. Its height should be 80 units. The width of the border should be 5 units.

9.Write a program to get a user input such as the boiling point of water and test it to the appropriate value using CompareValidator.

10.Write a program that uses a textbox for a user input name and validate it for RequiredField Validation.

11.Write a prgoram that gets user input such as the user name, mode of payment, appropriate credit card. After the user enters the appropriate values the Validation button validates the values entered.

12.Create a Form that receives the user name, address, date, nationality, country preferred for working and skill sets from the user and stores the user name in the client using cookies. The country preferred data should appear in a dropdownlist whereas, others should be entered in a text box. Validate all the controls. The Form is named “formexp.aspx”. The date should appareappear between “1/1/1990” and
1/1/2012

SKILL 1 :MM : Introduction to PHP Programming

UNIT – I

Introducing PHP – Basic development Concepts – Creating first PHP Scripts – Using Variable and Operators – Storing Data in variable – Understanding Data types – Setting and Checking variables Data types – Using Constants – Manipulating Variables with Operators.

UNIT – II

Controlling Program Flow: Writing Simple Conditional Statements - Writing More Complex Conditional Statements – Repeating Action with Loops – Working with String and Numeric Functions.

UNIT – III

Working with Arrays: Storing Data in Arrays – Processing Arrays with Loops and Iterations – Using Arrays with Forms - Working with Array Functions – Working with Dates and Times.

UNIT – IV

Using Functions and Classes: Creating User-Defined Functions - Creating Classes – Using Advanced OOP Concepts. Working with Files and Directories: Reading Files-Writing Files-Processing Directories.

UNIT – V

Working with Database and SQL : Introducing Database and SQL- Using MySQL-Adding and modifying Data-Handling Errors – Using SQLite Extension and PDO Extension. Introduction XML—Simple XML and DOM Extension.

TEXT BOOK

—PHP A Beginner's Guide **—**, VIKRAM VASWANI, Tata McGraw-Hill

Text Books:

1. The PHP Complete Reference – Steven Holzner – Tata McGraw-Hill Edition.

2. Spring into PHP5 – Steven Holzer, Tata McCraw Hill Edition

SKILL 2 : MM : PHP Programming Lab

1. Develop a PHP program using controls and functions

2.Develop a PHP program and check message passing mechanism between pages.

3.Develop a PHP program using String function and Arrays.

4. Develop a PHP program to display student information using MYSQL table.

5. Develop a PHP program to design a college application form using MYSQL table.

6. Develop a PHP program using parsing functions (use Tokenizing)

7. Develop a PHP program and check Regular Expression, HTML functions, Hashing functions.

8. Develop a PHP program and check File System functions, Network functions, Date and time functions.

9. Develop a PHP program using session

10.Develop a PHP program using cookie and session

SKILL 3 – BSC MM : ANIMATION TECHNIQUES

Subject Description : This Subject deals with the Animation Techniques.

Goal : To learn about Animation.

Objective: On Successful Completion of this subject the students should have :

- 2D & 3D Animation , Script Animation , Motion Caption , Audio & Video Format etc.

UNIT I:

What is mean by Animation – Why we need Animation – Types of Animation 2D & 3D – Theory of 2D Animation – Theory of 3D Animation – Difference between Graphics & Animation – Application of 2D & 3D Animation – History of Animation – Software's.

UNIT II:

Traditional 2D Animation Concept – Types of 2D Animation – Techniques of 2D Animation – Color – Text – Formation – Size – Script Animation – Time Line Effects – Application of 2D Animation – Characterization 2D – Principle of 2D Animation – Concept Development.

UNIT III:

3D Animation & its Concepts – Types of 3D Animation – Cycle & Non-Cycle Animation – Theory of Character 3D Animation – 3D Transition Animation – Skeleton & Kinetic 3D Animation – Texturing & Lighting of 3D Animation – 3D Camera Tracking – Applications & Software of 3D Animation.

UNIT IV:

Motion Caption – Formats – Methods – Usages – Motion Capture Software – Merge with Software – Expression – Formats – Methods – Usages – Expression Capture Softwares – Script Animation Usage – Different Language of Script Animation Among the Software.

UNIT V:

Concept Development – Scripting – Story Developing – Output Formats – Audio Formats & Video Formats – Colors – Color Cycle – Color Formats – 3D Production Budjets – 3D Animated Movies – Fields in 3D Animation.

TEXT BOOK:

Joestadaro , Donkim – " Maya 6.0 Bible ".

Kelly Ldot Murtock – " 3DS Max Bible ".

Reference Book :

Tom Meade , Shinsaku Arima - " Maya 8.0 The Complete Reference " – Tata McGrawhill.

SKILL– 4 : BSc MM : ANIMATION LAB - FLASH

PRACTICAL LIST

1. Create Shapes and Drawings in Flash.
2. Change a Shape to Another Shape. (Shape Animation)
3. Create a Man to walk with the help of Key Frame Animation.
4. Draw a Bird with Flash tools and make it fly with key Frame Animation.
5. Change the Colors of an object with the help of Animation.
6. Animate a Ball with the help of Guide line Animation.(Path Animation)
7. Create a Shining Stores with the help of Movie Clip.
8. Create Buttons & Link with other Frames.
9. Create an Album with the help of Buttons.
10. Create a 3D Rotation of a Box with the Help of Shape Animation.
11. Create Morphing between two images in Flash.
12. Create a Simple game with the help of Action Script.

REFERENCE BOOKS:

1. **Flash 8 in Simple Steps – Shalini Guptha & Adity Gupta,** 2007, dreamtech.
2. **Flash 8 – Ethan Waterall & Norbert Herber**, dreamtech.

SKILL 2 – BSC CSA: PHP Programming LAB

1. Develop a PHP program using controls and functions

2.Develop a PHP program and check message passing mechanism between pages.

3.Develop a PHP program using String function and Arrays.

4. Develop a PHP program to display student information using MYSQL table.

5. Develop a PHP program to design a college application form using MYSQL table.

6. Develop a PHP program using parsing functions (use Tokenizing)

7. Develop a PHP program and check Regular Expression, HTML functions, Hashing functions.

8. Develop a PHP program and check File System functions, Network functions, Date and time functions.

9. Develop a PHP program using session

10.Develop a PHP program using cookie and session

SKILL 3 BSc CSA :WEB DESIGNING WITH ASP & ASP. Net

Unit 1
Introduction to web design : what is web design – the web design process – frames – LINKING : text – buttons – icons & graphics – search & designing – text : fonts –text layout – colors – images and backgrounds – cookies

Unit 2
Introduction to ASP VB Script –active server objects : applications ,server, session , response, request - active server components : server side components.

Unit 3
Introduction to ASP.Net :what is ASP.Net – setting up for ASP.Net – Programming basics :basics of programming –program flow – effective coding techniques – processing ASP.Net applications.
Web founds and ASP.Net – ASP.Net and state – scope – ASP.Net objects and components.

Unit 4
Web services and ASP.Net –ASP.Net and SQL server –using SQL server –using database in ASP.Net applications – ActiveX data objects –ADO.Net object model.

Unit 5
Introduction to ADO- working with ADO connection object, command object and record set objects – over view of ADO and ADO.Net – ADO.Net providers , process – editing data with ADO,Net – ADO and SQL server.

Subject book.

1. The Complete reference WEB design by Thomos A Powel TMH Publications 2000 Edn.
2. Using Active server pages by Scot Johnson PHI Spl Edn.
3. ASP.Net a beginners guide by Dave Merces TMH 2002 Edn.
4. ADO & ADO.Net programming by Mike Yenderloy BPB publications 2002 Edn.

SKILL 4 : BSc CSA : ASP LAB

1. Design a personal web page using ASP.
2. Design a data entry form in ASP.
3. Write a Program in ASP to get data using a form, validate the data and returns the same data for correction if any using the same form.
4. Write a program in ASP to display the Session properties.
5. Write a program in ASP that makes use of Ad Rotator component.
6. Write a program in ASP that makes use of Browser Capabilities component.
7. Write a program in ASP that makes use of Content Rotator component.
8. Write a program in ASP that makes use of page counter component.
9. Write a program in ASP to get the data of students using forms and stores them in database.
10. Write a program in ASP to perform record navigation using a form.

SKILL – 1 : BCA - WEB PROGRAMMING

Unit I
Introduction to Internet – World Wide Web – Browsers: Introduction – Popular Web Browsers – know your browsers – Electronic Mail : Introduction – E-mail networks and servers – E-mail protocols – Structure of an E-mail.

Unit II
HTML : Introduction – Getting started – Creating and saving an HTML document – Document Layout of HTML Page – HTML elements – Some other formatting Styles – Hypertext Links.

Unit III
HTML (contd) : URLs – Images – HTML tables – Forms – Special Characters – Metatages.
Interactivity Tools and Multimedia : Introduction – DHTML – Scripting Languages – Java – ASP.

Unit IV
XML :XML basics – Introduction – need for XML – Advantages – Working with an XML Document – Structure of an XML Document – DTD- XML Schema

Unit V

XML (contd) : Working with XML Schema - Declaring Attributes – XML namespaces – Reusing Schema Components – Grouping elements and attributes. XML Style sheets : Introduction – CSS – eXtensible Style Sheet language – Formatting Data based on controls – Displaying data in a Tabular Format.

Text Books:

1. "Internet and Web Design", ITL Education, Macmillan India Ltd..
2. "HTML and XML an Introduction", NIIT, Prentice Hall of India Pvt. Ltd

REFERENCE BOOK:

1. World Wide Web Design with HTML – C. Xavier, 2007, TMH.

SKILL – 2 : BCA - WEB PROGRAMMING LAB

PRACTICAL LIST

1. Develop a HTML document which displays you name as ***<h1>*** heading and displays any four of your friends. Each of your friend's names must appear as hot text. When you click your friend's name, it must open another HTML document, which tells about your friend.

2. Write names of several countries in a paragraph and store it as an HTML document, *world.html*. Each country name must be a hot text. When you click India (for example), it must open *india.html* and it should provide a brief introduction about India.

3. Design a HTML document describing you. Assign a suitable background design and background color and a text color.

4. Develop a HTML document to print the following:

Who can use the solar heaters?
Anybody with a regular hot water demand.
- ***In houses for domestic purposes (cooking, bathing and washing).***
- ***For engineering / chemical industries, dairies and textile/leather process plants, to –preheat boiler feed water.***
- ***For hostels, hospitals, guest houses and industrial canteens.***
- ***For food-processing plants and for process applications.***

5. Write a HTML document to print the following:

The family has the following facilities:
1. Own House
- ***Living area 2400 square feet***
- ***Separate bungalow***
- ***Car shed***

2. Car
- ***Maruti Esteem***
- ***Registration Number TN 38 A 9650***
- ***1996 Model***

3. Farm

- ***35 acres Coconut Groves***
- ***10 acres Mango Groves***

6. Write a HTML document to print your class Time Table.

7. Develop a Complete Web Page using Frames and Framesets which gives the Information about a Hospital using HTML.

8. Write a HTML document to print your Bio-Data in the following format:
NAME
Religion
Community
Street
Town
District
State
Address
PIN Code
Office
Phone *Residence*
Mobile
Educational Qualification
Degree University/Institute Month& year Grade / Mark

9. Develop complete set of web pages to describe you skills in various areas using HTML.

10. Develop a web site to publish your family and the details of each member using HTML.

11. Develop a HTML document to display a Registration Form for an inter-collegiate function.

12. Develop a HTML document to design Alumni Registration form of your college.

Skill 4 : BCA - CASE TOOLS -Lab

1. To design an ATM transfer system using UML diagram and to generate VB code.

2. To design a student mark analysis using UML diagram and to generate VB code.

3. To design a platform assignment system using UML diagram and to generate VB code.

4. To design a railway reservation system using UML diagram and to generate VB code.

5. To design an expert system for medicine field using UML diagram and to generate VB code.

6. To design a stock maintenance system using UML diagram and to generate VB code.

7. To design a quizzing system using UML diagram and to generate VB code.

8. To design a remote computer monitoring system using UML diagram and to generate VB code.

9. To design an online ticket reservation system using UML diagram and to generate VB code.

10. To design an E-mail client server system using UML diagram and to generate VB code.

BHARATHIAR UNIVERSITY: COIMBATORE-641 046

B.Sc. CS/IT/CT/SS/MM/CSA &BCA

(For the students admitted from the academic year **2011-2012** and onwards)

CBCS PATTERN

GUIDELINES FOR PROJECT WORK

 The aim of the Project work is to acquire practical knowledge on the implementation of the programming concepts studied.

 Each student should carry out individually one Project Work and it may be a work Using the software packages that they have learned or the implementation of Concepts from the papers studied or implementation of any innovative idea.

 The Project work should be **compulsorily done in the college only under the supervision of the Department staff concerned.**

- **The work has to be done in two parts.**
- **During V Semester - Up to Logical System design.**
- **During VI Semester – Physical System Design**

 University Exam will be conducted as follows.

End Semester Viva

- An End- semester Viva-voce will be conducted at the end of V semester for 50 marks.
- There is no minimum or pass marks.
- Both the Internal (Respective Guides) and External Examiners (25+25)Should Conduct the Viva-Voce Examination at the last day of the practical session.
- Along with the mark sheet an ***Annexure report*** containing the candidate's Register no and Title of the Project work should be sent to the Controller of Examinations by the Examiners and a copy of the same has to be retained in the College.
- No candidate will be allowed to change the title of the Project work after the completion of End- semester Viva.
- For those absent on genuine grounds a common subliment End-Semester Viva-voce may be conducted at the University for All Colleges by obtaining prior permission from the COE on the recommendations from the HODs of respective colleges before the commencement of the next semester.

Final Viva

- Final Viva-Voce will be conducted at the end of VI semester by Both the Internal (Respective Guides) and External Examiners (75+75), after duly verifying the ***Annexure Report*** available in the College, for a total of 150 marks at the last day of the practical session.

- Out of 75 marks, 50 for Project Evaluation and 25 for Viva.

- For awarding a pass, a candidate should have obtained 40% of the Total 200 marks (End semester Viva + Final Viva).

PROJECT WORK

TITLE OF THE DISSERTATION

Bonafide Work Done by
STUDENT NAME
REG. NO.

Dissertation submitted in partial fulfillment of the requirements for the award of Bachelor of Computer Science…….
Of Bharathiar University, Coimbatore-46**.**

College emblem

GUIDE HOD

Submitted for the Viva-Voce Examination held on _____

Internal Examiner External Examiner

MONTH – YEAR

CONTENTS

2.1.1 DRAWBACKS
2.2 PROPOSED SYSTEM
2.2.1 FEATURES
3. SYSTEM DESIGN AND DEVELOPMENT
3.1 FILE DESIGN
3.2 INPUT DESIGN
3.3 OUTPUT DESIGN
3.4 DATABASE DESIGN
3.5 SYSTEM DEVELOPMENT
3.5.1 DESCRIPTION OF MODULES
(Detailed explanation about the project work)
4. TESTING AND IMPLEMENTATION

5. CONCLUSION
BIBLIOGRAPHY
APPENDICES
A. DATA FLOW DIAGRAM
B. TABLE STRUCTURE
C. SAMPLE CODING
D. SAMPLE INPUT
E. SAMPLE OUTPUT