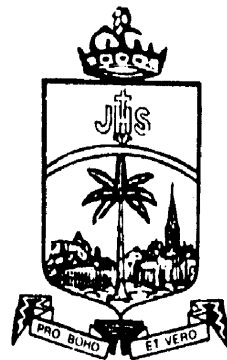# M.C.A.
SYLLABUS : 2012

CHOICE BASED CREDIT SYSTEM (CBCS)

St. JOSEPH'S COLLEGE (Autonomous)
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
College with Potential for Excellence by UGC
TIRUCHIRAPPALLI - 620 002, INDIA.

FEATURES OF CHOICE BASED CREDIT SYSTEM

PG COURSES

The Autonomous (1978) St. Joseph's College, accredited with Five Star status in 2001, Re-accredited with **A+ Grade** from **NAAC (2006),** Re-accredited with **A Grade** from **NAAC (3rd cycle)**, had introduced the Choice Based Credit System **(CBCS)** for PG courses from the academic year 2001-2002. As per the guidelines of Tamil Nadu State Council of Higher Education (TANSCHE) and the Bharathidasan University, the College has reformulated the CBCS in 2008-2009 by incorporating the uniqueness and integrity of the college.

OBJECTIVES OF THE CREDIT SYSTEM

✴ To provide mobility and flexibility for students within and outside the parent department as well as to migrate between institutions

✴ To provide broad-based education

✴ To help students learn at their own pace

✴ To provide students scope for acquiring extra credits

✴ To impart more job oriented skills to students

✴ To make any course multi-disciplinary in approach

What is credit system?

Weightage to a course is given in relation to the hours assigned for the course. Generally one hour per week has one credit. For viability and conformity to the guidelines credits are awarded irrespective of the teaching hours. The following Table shows the relation between credits and hours.

Sem.	Specification	No. of Papers	Hour	Credit	Total Credits
I – IV	Core Courses (Theory & Practical)	14	6	14 x 5	70
	Project	1	--	1 x 5	05
I – IV	3 – Core Electives	3	4	3 x 4	12
	1 – Soft Skill Course (Common) (IDC-1)				
	1 – Inter Dept. Courses (IDC-2)	2	4	2 x 4	08
I – IV	SHEPHERD – Extension Activity	~	70	5	05

Total Minimum Credits   **100**

Other Additional Credits (Dept. Specific)   **....**

However, there could be some flexibility because of practicals, field visits, tutorials and nature of project work.

For PG courses a student must earn a minimum of 100 credits. The total number of courses offered by a department is 20. However within their working hours a few departments can offer extra credit courses.

Course Pattern

The Post Graduate degree course consists of three major components. They are Core Course, Elective Course and Inter Departmental Course (IDC). Also 2 compulsory components namely Project / Project related items and SHEPHERD, the extension components are mandatory.

Core Course

A core course is the course offered by the parent department, totally related to the major subject, components like Practicals, Projects, Group Discussions, Viva, Field Visits, Library Record form part of the core course.

Elective Course

The course is also offered by the parent department. The objective is to provide choice and flexibility within the department. The student can choose his/her elective paper. Elective is related to the major subject. The difference between core course and elective course is that there is choice for the student. The department is at liberty to offer three elective courses any semester. It must be offered at least in two different semesters. The staff too may experiment with diverse courses.

Inter Departmental Course (IDC)

IDC is an inter departmental course offered by a department for the students belonging to other departments. The objective is to provide mobility and flexibility outside the parent department. This is introduced to make every course multi-disciplinary in nature. It is to be chosen from a list of courses offered by various departments. The list is given at the end of the syllabus copies. Two IDC s must be taken by students which are offered in Semester II & III. In
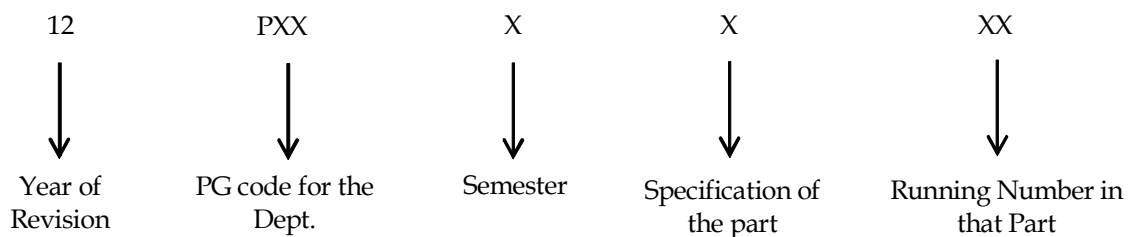
semester II, a common IDC, Soft Skills is to be offered by JASS (Joseph Academy of Soft Skills).

Day College (Shift-I) student may also take an IDC-2 from SFS (Shift-II) course and vice versa

The IDC are of application oriented and inter-disciplinary in nature.

Subject Code Fixation

The following code system (9 characters) is adopted for Post Graduate courses:

12	PXX	X	X	XX
Year of Revision	PG code for the Dept.	Semester	Specification of the part	Running Number in that Part

01 – Core Courses: Theory & Practical

02 – Core electives

03 – Additional Core Papers (if any)

04 – Inter Departmental Courses

05 – Project

06 – SHEPHERD

CIA Components

The CIA Components would comprise of two parts: (1) Test Components conducted by Controller of Examination (COE) and (2) Teacher specific component. The two centralized tests will be conducted by the COE (Mid-Semester Test & End-Semester Test) for 30% each administered for 2 hours duration. The remaining 40% would comprise of any three components as listed below and will be carried out by the faculty concerned for that paper.

∗ Assignment, Quiz (Written / Objective), Snap Test, Viva-Voce, Seminar, Listening Comprehension, Reading Comprehension, Problem Solving, Map Reading, Group Discussion, Panel Discussion, Field Visit, Creative Writing, Open Book Test, Library Record, Case Study, etc.

＊ As a special consideration, students who publish papers in referred journals would be exempted from one of the teacher specific internal components in one of the papers. At the beginning of each semester, the four internal components would be informed to the students and the staff will administer those components on the date specified and the marks acquired for the same will be forwarded to the Office of COE.

Evaluation

For each course there are formative continuous internal assessment (CIA) and semester examinations (SE) in the weightage ratio 50:50.

Once the marks of CIA and SE for each course are available, the Overall Percentage Mark (OPM) for a student in the programme will be calculated as shown below:

$$OPM = \frac{\sum_i C_i M_i}{\sum_i C_i}$$ where C_i is the credit earned for that course in any

semester and M_i is the marks obtained in that course.

The Scheme of Over-all Results is as follows:

Class	PG	
	Arts (OPM)	Science (OPM)
SECOND	50 to 59.99	50 to 59.99
FIRST	60 to 74.99	60 to 79.99
DISTINCTION	75 & Above	80 & Above

Declaration of Result

Mr./Ms. _____ has successfully completed M.Sc./M.A. degree course in _____. The student's overall average percentage of marks is _____ and has completed the minimum 100 credits. The student has also acquired _____ (if any) additional credits from courses offered by the parent department.

Master of Computer Applications (MCA) - Course Pattern

Sem	Course Code	Course Title	Hrs/Week	Credits
I	12PCA1101	Programming in C and UNIX	4	3
	12PCA1102	Mathematical Foundations	4	3
	12PCA1103	Organizational Behavior	4	3
	12PCA1104	Web User Interface Design	4	3
	12PCA1105	Digital Computer Fundamentals	4	3
	12PCA1106	Software Lab -I(C and LINUX)	3	3
	12PCA1107	Software Lab – II (Web User Interface Design)	3	3
		Web learning/e-learning	2	-
		ICT	2	
		TOTAL FOR SEMESTER I	**30**	**21**
II	12PCA2108	Object Oriented Concepts and C++	4	3
	12PCA2109	Operations Research	4	3
	12PCA2110	Operating Systems	4	3
	12PCA2111	Data Structures and Algorithms	4	3
	12PCA2112	Software Lab – III (C++)	3	3
	12PCA2113	Software Lab – IV (Multimedia)	3	3
	12PCA2114	ICT	2	3
	12PSK2401	IDC-I: Soft Skills	4	4
		Web learning/e-learning	2	
		TOTAL FOR SEMESTER II	**30**	**25**
III	12PCA3115	Programming in JAVA	4	3
	12PCA3116	Probability and Statistics	4	3
	12PCA3117	Data Base Systems	4	3
	12PCA3118	Software Engineering	4	3
	12PCA3119	Software Lab – V(JAVA)	3	3
	12PCA3120	Software Lab – VI(RDBMS)	3	3
		Skill Based Course-II: Quantitative Aptitude*	2	-
	12PCA3402/ 12PCA3403	IDC–II: Computer Applications for Social Sciences/Fundamentals of Programming	4	4
		Domain Study **	2	-
		TOTAL FOR SEMESTER III	**30**	**22**

	12PCA4121	Programming with Win32 API and MFC	4	3
	12PCA4122	Accounting and Financial Management	4	3
	12PCA4123	Graph and Automata Theory	4	3
	12PCA4124	Computer Networks and Security	4	3
IV	12PCA4201A 12PCA4201B 12PCA4201C 12PCA4201D 12PCA4201E	Optional: a)Linux Administration b)Systems Programming c)Software Testing d)Component Programming e) Database Administration	4	4
	12PCA4125	Software Lab – VII(VC++)	3	3
	12PCA4126	Software Lab – VIII(PHP & MYSQL)	3	3
	12PCA4127	Mini Project	-	4
	12PCA4128	Skill Based Course-II: Quantitative Aptitude *	2	3
	12PCA4129	Domain Study **	2	3
		TOTAL FOR SEMESTER IV	**30**	**32**
V	12PCA5130	Distributed Technologies	4	3
	12PCA5131	Computer Organization and Architecture	4	3
	12PCA5202A 12PCA5202B 12PCA5202C 12PCA5202D	Optional: a) Principles of Programming Languages b) Principles of Compiler Design c) Computer Graphics d) Principles of SOA and BPM	4	4
	12PCA5132	Management Information Systems and ERP	4	3
	12PCA5133	Unified Modeling Techniques	4	3
	12PCA5134	Software Lab – IX(Distributed Programming)	3	3
	12PCA5135	Software Lab – X (XML & WML)	3	3
	12PCA5136	Comprehensive Study ***	3	3
		Library	1	
		TOTAL FOR SEMESTER V	**30**	**25**
VI	12PCA6501	Major Project	30	20
		TOTAL FOR SEMESTER VI	**30**	**20**
I-III		Extension Service - SHEPHERD		5
		TOTAL FOR ALL SEMESTERS	**180**	**150**

@   Work to be assigned and evaluated by the Staff members. Internal marks to be given at the end of the year.

Code numbers according to the subjects chosen.

*   Examination Fully Internal at the end of the year.

**   Report to be submitted and VIVA to be conducted by the internal examiners at the end of the year. (Only Internal)

***   Paper fully internal

Sem.I   *Hours/week :4*
12PCA1101   *Credit : 3*

PROGRAMMING IN C AND UNIX

Objectives

♦ To develop programming skills using C language, to learn to use the specialities of 'C' language for programming and to develop good understanding of the structure of UNIX operating system.

Unit – I

Structure of Unix - UNIX file system - Types of users, files and permission - Structure of Password file - Directories and Path name - basic directory Commands – standard I/O files - redirecting standard I/O files - Pipelines and filters - Process status -Protecting, Terminating, Setting priority and Killing a process.   (12)

Unit – II

Data Types - Variables - Operators - Control structures - Looping structures - Arrays - Strings - Built-in-functions.(12)

Unit – III

Function - Scope of Variables - Advanced features of functions - Low level I/O (UNIX file related system Calls).   (12)

Unit – IV

Pointer - Pointers to Array - Pointer Array - Pointer Arithmetic - Pointer of Pointer - Functions and Pointers -Structures and Pointers - Dynamic Allocation - Function pointer.   (12)

Unit – V

Structure - Union- Files - Sequential Files - Random Access Files - Command Line Arguments.   (12)

TEXT BOOK(S)

1. Brian W. Kernighan, Dennis M.Ritchie, "The C Programming Language", Prentice Hall of India Pvt. ltd., New Delhi, 1989.

2. Rebecca Thomas, Jean Yates, "A User Guide to the UNIX System",Osborne McGraw-Hill, USA, Second Edition,1985.

BOOK(S) FOR REFERENCE

Byron S.Gottfried, "Programming with C", Schaum's Outline Series, Tata McGraw Hill Edition, New Delhi, 1991.

Sem. I   *Hours/week : 4*

12PCA1102   *Credit : 3*

MATHEMATICAL FOUNDATIONS

Objectives

♦   To impart basic features of Logic, Set Theory and ideas of Lattices and Boolean algebra, and to introduce numerical mathematics.

Unit – I

Mathematical Logic: Statements and Notation - Connectivities - Statement Formulas and Truth Tables - Tautologies – Equivalence of Formulas - Duality Law . Tautological implications - The theory of inference - validity using truth tables-Rules of Inference. (12)

Unit –II

Basic concepts of Set Theory : Inclusion and Equality of sets - Power set - Operations on Sets - Venn Diagrams - Cartesian Products. Relations and Ordering - Binary & Equivalence relations - Partial Ordering. Functions - Composition of functions, inverse functions, Binary & n-ary operations. (12)

Unit – III

Lattices as Partially ordered sets - Hash diagrams - Properties of Lattices - Distributive & Modular inequalities - Special lattices - Complete, Bounded, Complemented & Distributive lattices. Properties of Boolean Algebra. (12)

Unit – IV

Solution of polynomial equations: Birge-Vieta and Root squaring methods. System of linear algebraic equations: Gauss - elimination, Gauss - Jordan, Triangularization and Partition methods - Jacobi, Gauss-Seidal iterative methods. Eigen values by power method. (12)

Unit – V

Interpolation: Lagrange's and Newton's interpolation - interpolating polynomials using finite difference. Numerical integration: Trapezoidal, Simpson's rules and Romberg integration.

(12)

Note: Stress in on Numerical Problems in Units IV and V

TEXT BOOK(S)
Units I, II, III

1.   J.P.Tremblay & R.Manohar, "Discrete Mathematical Structures with Applications to Computer Science", McGraw-Hill International Edition, 1987.

Units IV, V

2.   M.K. Jain, S.R.K. Iyengar & R.K. Jain, "Numerical Methods for Scientific and Engineering Computation", Wiley Eastern Limited, New Delhi, 1987.

BOOK(S) FOR REFERENCE

1.   Bernard Kolman & Robert C. Busyby, "Discrete Mathematical Structures for Computer Science", Prentice Hall of India, New Delhi 1987.

2.   Curtis F. Gerald, "Applied Numerical Analysis", Addison Wesley Publishing Company, London, 1978.

Sem. I   Hours/week: 4
12PCA1103   Credit: 3

ORGANIZATIONAL BEHAVIOR

Objectives

♦ To enable the students to understand the basic concepts of organizational Structure and its behavior.

Unit I

NATURE OF ORGANIZATION – features – types – goals. NATURE OF ORGANIZATIONAL BEHAVIOR – Nature of OB – Role of OB - Foundations of OB.   (12)

Unit II

NATURE OF HUMAN BEHAVIOR: Nature and causes of individual differences – models of man. PERCEPTION: Concept – process – perceptual selectivity and disortion – Developing perceptual skills LEARNING AND BEHAVIOR MODIFICATION: Concept – components – reinforcement principles – OB Mod PERSONALITY: Theories – Determinants – Personality and behavior.   (12)

Unit III

Attitudes: Concept - Theories - Formation factors - measurements - Attitude change - MOTIVATION: Definition - Motivation & Behavior - Theories - approaches - incentives - STRESS: Concept & features - Causes & effects - Coping strategies.   (12)

Unit IV

INTERPERSONAL BEHAVIOR – Transactional analysis – Ego states – life scripts – life positions – transactions – stroking – Psychological games – Benefits of TA – GROUP DYNAMICS: Concepts & features of group – types of groups – group behavior – group decision making – committee – task group – inter group behavior – LEADERSHIP: Definitions – types – importance – theories – styles.   (12)

Unit V

ORGANIZATION THEORY - Classical organizational theory - neoclassical organizational theory - DESINGING OF ORGANIZATIONAL STRUCTURE: need - planning and process - Departmentation - span of management - delegation of authorities - centralization & decentralization - FORMS OF ORGANIZATIONAL STRUCTURES: line and staff - functional - divisional - project - matrix - free form - ORGANIZATIONAL CHANGE & DEVELOPMENT: reasons - resistance to change - organizational development - OD interventions. (12)

TEXT BOOK(S)

Organisational Behavior, Prasad LM, Sultan chand and Sons, 2007.

BOOK(S) FOR REFERENCE

1. Organisational Behavior , SS Khanka , Chand and company

2. Organisational Behavior , K. Aswathappa 5th edition.

WEB USER INTERFACE DESIGN

Objectives

♦   To know the UI Design principles, the features of HTML and Scripting Language VB Script and to design web pages.

Unit 1:

Web Medium: Core web technologies – web browsers – Markup Languages – Style sheet technologies – images – sound – video – programming technologies – client side, server side – network and related protocols – Introduction to static, dynamic and active web pages.   (12)

Unit 2:

HTML: Structure - Tags - Documant Layout - comments - headings - paragraphs - breaks - texts formatting – lists.   (12)

Unit 3:

HTML: Special characters - links - images - form - tables - frames.   (12)

Unit 4:

VB Script: Language structure - control structure - Procedures and functions - Error handling.   (12)

Unit 5:

VB Script: Input & Output - Data Validation -Integration with Forms - Activex Control & Scripting.   (12)

TEXT BOOK(S)

1.   Thomas A Powell, "Web Design – The Complete Reference", Tata McGraw-Hill, Second Edition, 2003.

2.   Christopher J.Goddard, Mark White, "Mastering VB Script", Galgotia publications, New Delhi.

3.   Thomas A Powell, "The Complete Reference - HTML", Osborne-McGraw-Hill, Third Edition, 2000.

BOOK(S) FOR REFERENCE

Gary B. Shelly, H. Albert Napier, Ollie N. Rivers, "Web Design: Introductory Concepts and Techniques", Cengage Learning, 2008.

BOOK(S) FOR REFERENCE

Gary B. Shelly, H. Albert Napier, Ollie N. Rivers, "Web Design: Introductory Concepts and Techniques", Cengage Learning, 2008.

Sem.I   *Hours/week : 4*
12PCA1105   *Credit : 3*

DIGITAL COMPUTER FUNDAMENTALS

Objectives

♦ To give fundamental principles of digital electronics, semiconductor memories, A/D and D/A converters.

Unit – I

Number Systems and Logic Circuits: Number systems - Decimal, Binary, Octal, Hexadecimal - conversion from one to another - Characters and codes - ASCII code, Excess-3 code, gray code - binary addition, subtraction, multiplication and division - unsigned binary numbers - signed magnitude numbers - complements in number systems - Truth tables, AND, OR, NOT, NOR & NAND gates, EX-OR gates - parity generators and checkers.

(12)

Unit – II

Boolean Algebra and Digital Circuits : Boolean laws and theorems - De Morgan's theorems - Duality theorem - simplification of sum of product and product of sum expressions - Karnaugh map and simplifications - Simple arithmetic circuits - Half and Full adders - Binary adder/subtracter - BCD adder - Data processing circuits - Multiplexers - Demultiplexers -Encoders and Decoders.(12)

Unit –III

Sequential Logic Design: Flip-flops - RS, JK, D & T Flip flops - Master/Slave Flip flop - Shift Registers - Counters - Asynchronous and Synchronous Counters. (12)

Unit – IV

D/A And A/D Conversion : D/A converter - D/A accuracy and resolution -A/D Converter - simultaneous conversion - counter method - continuous conversion - A/D techniques - Dual Slope conversion - A/D accuracy and Resolution. (12)

Unit – V

Memory Elements : RAM - Linear Select memory organization - decoders - Dimensions of memory access - connecting memory chips to a computer bus - static RAM - Dynamic RAM - ROM - Magnetic Disk memories - Magnetic tape - Magnetic Bubble memories - Computer word structures - Storage Hierarchy - Virtual memory - Cache memory.   (12)

TEXT BOOK(S)
Units I, II, III, IV

1.   Donald P.Leach and Albert Paul Malvino, "Digital Principles and Application", Fifth Edition, Tata McGraw-Hill Publishing Company Ltd., New Delhi, 2003.

Unit V

2.   Thomas C. Bartee, "Computer Architecture and Logic Design", McGraw Hill International Edition, New Delhi, 1991.

BOOK FOR REFERENCE

Thomas C.Bartee, "Digital Computer Fundamentals", McGraw-Hill International Edition, New Delhi, 1985.

Sem. I   *Hours/week : 3*

12PCA1106   *Credit : 3*

SOFTWARE LAB – I (C AND LINUX)

1. Usage of Unix Commands

2. Simple Problems - Arithmetic, Logical and Ternary Operators

3. Problems in decision making- IF-Else, Switch case

4. Problems in Loop structures-While, For, Do-While

    Series and Sequence Manipulation

5. Problems in Single dimension array

    Sorting, Searching

6. Two and Multi dimensional array – Matrix manipulation- Using Functions

7. Recursion – Factorial, GCD, Adding two numbers

8. Problems in structures

9. Problems in File Handling

    Text file processing

    Sequential File processing

    Random Access

10. String Manipulation Using pointers

11. Pointers and Structures - Simple Problems

Sem. I   *Hours/week: 3*
12PCA1107   *Credit : 3*

SOFTWARE LAB –II
WEB USER INTERFACE DESIGN

HTML and DHTML

1.   Designing a form using simple tags

2.   Developing a form using Frame tag

3.   Hidden forms

VB Script

4.   Script writing basics

5.   Using Name, object and methods

6.   Adding interactivity to a web page

7.   Creating Dynamic web pages

8.   Scripting Forms

9.   Designing a calculator.

OBJECT ORIENTED CONCEPTS AND C++

Objectives

♦ To provide a sound understanding of the fundamental concepts of the object technology and to learn the realistic applications of object-oriented software systems using C++.

Unit – I

Principles of Object Oriented Programming: Software Crisis - software evolution - procedure oriented programming - object oriented programming paradigm - basic concepts and benefits of OOP - object oriented language - application of OOP - structure of C++ - applications of C++ - tokens, expressions and control structures - operators on C++ - manipulators.   (12)

Unit – II

Functions in C++: Function prototyping - call by reference - return by reference - inline functions - default, const arguments - function - overloading - friend and virtual functions - classes and objects - member functions - nesting of member functions - private member functions - memory allocations of objects - static data members - static member functions - arrays of objects - objects as functions - arguments - pointers to members.   (12)

Unit – III

Constructors: Parametrized constructors - multiple constructors - constructor with default parameters - copy and dynamic constructors - destructors - operator overloading - overloading unary and binary operators - overloading binary operators using friend functions.   (12)

Unit – IV

Inheritance: Defining derived classes - single inheritance - making a private member inheritable - multiple inheritance - hybrid

inheritance - virtual base classes - abstract classes - constructors in derived classes - member classes - nesting of classes.

(12)

Unit – V

Streams formatted and unformatted I/O: Defined manipulators - File I/O - reading and writing - various functions - Exception handling: try - throw - catch statements – re-throwing - Templates : generic classes and functions. (12)

TEXT BOOK

E. Balagurusamy, "Object Oriented Programming with C++", Tata McGraw Hill,New Delhi, 4th edition, 2008.

BOOK FOR REFERENCE

1.   Robert Lafore, "Object Oriented programming in Microsoft C++", Galgotia Publications, New Delhi, 2000.

2.   Bjarne Stroustrup, "The C++ Programming Language", Addison-Wesley, 1999.

3.   Herbert Schildt, "C++: The complete reference", Tata McGraw Hill, New Delhi, Second edition , 1998.

Sem. II   *Hours/week : 4*
12PCA2109   *Credit : 3*

OPERATIONS RESEARCH

Objectives

♦ To give detailed knowledge about Linear programming Queuing theory. Also to give the basics of Inventory models, sequencing and project scheduling.

Unit – I

Linear Programming : Formulations and Graphical solution to L.P. Problem - Simplex method - Degeneracy, unbounded and infeasible solution -Method of penalty - Two Phase Method.   (12)

Unit – II

Linear Programming(contd):Duality-Primal and Dual Computations -Dual Simplex Method - Transportation problem and its solution - Assignment problem and its solution by Hungarian method.   (12)

Unit – III

A)   Theory of games: Two person zero sum game- saddlepoint-mixed statistics-graphical solution-dominance property-reducing the game problem to a LPP.

B)   Sequencing: Assumption-optimal sequence algorithm-problem with n jobs-2machines, n jobs – 3 machines and n jobs m machines- graphical solution.   (12)

Unit – IV

Project scheduling by PERT - CPM : Phases of project scheduling -Arrow Diagram - Critical Path Method - Probability and Cost Considerations in Project Scheduling - Crashing of Networks.
                                                                 (12)

Unit – V

a)   Queuing Theory: Queuing System - Characteristics of Queuing system - classification of queues - Poisson Queues - M/M/1 and M/M/C Queuing Models.

b) Inventory Management : Inventory Control - ABC analysis – Economic Lot size Problems - EOQ with uniform Demand and shortages – Limitations of inventories - Buffer stock - Determination of Buffer stocks. (12)

Note: Stress to be on solving Numerical Problems only

TEXT BOOK(S)

Units I & II

1. Hamdy A. Taha, "Operations Research-An Introduction", Macmillan Publishing Co., 5th Edition.,1987. (relevant portions only)

Units III, IV & V

2. Kanti Swarup, P K Guptha and Man Mohan, "Operations Research" , Sultan Chand & Sons , New Delhi ,1994. (relevant portions only)

BOOK(S) FOR REFERENCE

1. W.W. Garvin, "Introduction To Linear Programming", McGraw Hill, New Delhi, 1960.

2. P.K.Gupta, Man Mohan, "Operations Research and Quantitative Analysis", Sultan Chand & Sons,New Delhi First Edition, 1987.

Sem. II   Hours/week : 4
12PCA2110   Credit : 3

OPERATING SYSTEMS

Objectives

♦ To present fundamental aspects of various managements in an operating system.

Unit – I

Introduction: Simple batch system - multiprogrammed batch systems - time sharing - personal computer, parallel, distributed and real time systems. Computer-system Structures: Computer-system operation - I/O structure - storage structure - storage hierarchy - hardware protection - general system architecture. Operating system structures: system components - operating system services - system calls - system programs - system structures - virtual machines - system design and implementation - system generation.   (12)

Unit – II

Process Management: Processes: process concept - process scheduling - operation on processes - cooperating processes - threads - interprocess communication. CPU scheduling: basic concepts - scheduling algorithms - multiple - processor scheduling - real time scheduling - algorithm evaluation. Process Synchronization: background - critical - selection problem - synchronization hardware - semaphores - classical problems of synchronization - critical regions - monitors - synchronization in Solaris - atomic transactions. Deadlocks: system model - deadlock characterization - methods for handling deadlocks - deadlock prevention - deadlock avoidance - deadlock detection - recovery from deadlock - combined approach to deadlock handling.   (12)

Unit – III

Storage Management: Memory Management: background - logical versus physical address space - swapping - contiguous allocation - paging - segmentation - segmentation with paging. Virtual memory: Background - demand paging - performance of

demand paging - page replacement - page-replacement algorithms - allocation of frames - thrashing - demand segmentation.   (12)

Unit –IV

File - system interface: file concept - access methods - directory structure - protection - consistency semantics. File-system implementation: file-system structure - allocation methods - free-space management - directory implementation - efficiency and performance - recovery. I/O systems: i/o hardware - application i/o interface - kernel i/o subsystem - transforming I/O requests to hardware operations - performance. Secondary storage structure: disk structure - disk scheduling - disk management - swap-space management - disk reliability - stable-storage implementation. (12)

Unit – V

Protection: goals of protection - domain of protection - access matrix - implementation of access matrix - capability-based systems - language - based protection. Security: problem - authentication - one-time passwords - program threats - system threats - encryption - computer-security classifications.   (12)

TEXT BOOK

Abraham Silberschatz and Peter Baer Galvin, "Operating System Concepts", 4th edition, Addison Wesley Longman Inc., California, 1998.

BOOK(S) FOR REFERENCE

1. Harvey M. Deitel, "An introduction to Operating System", Addison Wesley Publishing Company, California, 1984.

2. Andrew S. Tanenbaum, "Modern Operating Systems", Prentice Hall of India Private Ltd., New Delhi, 1997.

DATA STRUCTURES AND ALGORITHMS

Objectives

♦ To give a detailed knowledge on Data structures and to give an exposure in the development of algorithms related to data structures.

Unit – I

Primitive data structures: Introduction - operations of data structures - Number systems - integer, real numbers, character, logical and pointer information and their representation. Linear data structures: Concepts of non - primitive data structures - storage structures for arrays - stacks - operations on stacks - applications of stacks - queues and its applications -priority queues.   (12)

Unit – II

Linked linear lists - operations on linked linear lists - circularly linked linear lists - doubly linked linear lists - applications of linked linear lists. Non-linear data structures: trees - binary trees - operations on binary trees - storage representation and manipulations of binary trees - conversion of general trees into binary trees.   (12)

Unit – III

Dynamic storage management - fixed block and first-fit storage allocation - Best fit storage allocation - storage release - buddy system - garbage collection – compaction.   (12)

Unit – IV

Sorting: Array sorting - sorting by straight insertion, selection, exchange - sort by diminishing increments - tree sort - partition exchange sort - sorting sequential files - straight merging - natural merging - polyphase sort.   (12)

Unit – V

a) Searching methods: searching - sequential and binary searching - search trees - hash table method. b) Recursive algorithms

- Hilbert's curve, Sierpinski curve, backtracking algorithms – the Eight queens problem, Knight's tour problem.   (12)

TEXT BOOK(S)
Units I, II, III, V(a)

1.   Jean-Paul Tremblay and Paul G.Sorenson, "An introduction to data structures with applications", Second Edition, Tata McGraw Hill Publishing Company Limited, New Delhi, 1995.

Units IV, V(b)

2.   Niklaus Wirth , "Algorithms + Data structures = Programs", Prentice Hall of India Ltd, New Delhi.

BOOK(S) FOR REFERENCE

1.   Tanenbaum A.M. and Augustein M.J., "Data structures with Pascal", Prentice Hall of India Ltd., New Delhi, 1985.

2.   Ellis Horowitz and Sartaj Sahni, "Fundamentals of computer algorithms", Galgotia Publications, New Delhi, 1985.

Sem. II   *Hours/week : 3*

12PCA2112   *Credit : 3*

SOFTWARE LAB – III (C++)

Classes and Objects

1. Simple Problems Using classes

2. Constructors and Destructors

3. Static Polymorphism: Operator overloading & function overloading

4. All types of Inheritance.

5. Problems Using Overriding

6. Dynamic Polymorphism: Virtual functions.

7. Problems with pure virtual functions and abstract classes

8. Formatted I/O and File operation with Command Line Arguments

9. Templates [Dynamic programming]

10. Exception Handling

11. Problem solving using Graphics function

Data Structure Concepts Using Objects

12. Singly Linked list.

13. Binary Tree Creation and Traversals.

Sem. II   *Hours/week : 3*

12PCA2113   *Credit : 3*

SOFTWARE LAB-IV: MULTIMEDIA

PhotoShop

1. Develop an image using selection and allied operations

2. Develop an image using Effects and apply Filters

3. Develop an image with the help of patterns, images.

4. Develop an image and do the following image slicing, rollover, animations.

Flash

5. Develop an image with the help of basic shapes.

6. Animate an image using motion, shape tweening, and actions.

Flash MX

7. Animate an image using interface elements and mix with video.

Dreamweaver

8. Create a simple web page contain five images with animation.

9. Develop a class timetable using tables in dreamweaver.

10. Develop a College student application form using dream weaver.

Sem. II   *Hours/week : 2*

12PCA2114   *Credit : 3*

ICT

IDC-I: SOFT SKILLS

Unit 1: Effective Communication & Resume Writing   12 Hours

Effective Communication

Definition of communication, Process of Communication, Barriers of Communication, Non-verbal Communication, Johari Window, The Art of Listening, Kinesthetic, Production of Speech, Organization of Speech, Modes of delivery, Conversation Techniques, Dialogue, Good manners and Etiquettes.

Resume Writing

What is Resume? Types of Resume? Chronological, Functional and Mixed Resume, Steps in preparation of Resume.

Unit II: Group Discussion, Interview Skills & Team Building

18 hours

Group Discussion (GD)

Group Discussion Basics, GD Topics for Practice, Points for GD Topics, Case-Based and Article based Group Discussions, Points for Case Studies, and Notes on Current Issues for GD.

Interview Skills

Common interview questions, Attitude, Body Language, The mock interviews, Phone interviews, Behavioral interviews.

Team Building

Team Vs Group – synergy, Stages of Team Formation, Dabbawala-Case Study-PPT, Broken Square-Exercise, Group dynamics, Win as much as you win- Exercise, Leadership – Styles, Work ethics.

Unit III: Personality Development, Attitude & Motivation   18 hours
Personality Development

Self awareness, Assertiveness, Goal setting, Problem-solving, Conflict and Stress Management, Decision-making skills, Positive and Creative thinking, Lateral thinking, Time management.

Attitude

Concept, Significance, Factors affecting attitudes, Positive attitude, Advantages, Negative attitude, Disadvantages, Ways to develop positive attitude, Difference between Personalities having positive and negative attitude.

Motivation

Concept of motivation, Significance, Internal and external motives, Importance of self-motivation, Factors leading to demotivation.

Unit IV: Numerical Ability   8 hours

❋   Average, Percentage

❋   Profit and Loss, Simple Interest, Compound Interest

❋   Time and Work, Pipes and Cisterns

❋   Time and Distance, Problems on Trains, Boats and Streams

❋   Calendar, Ratios and Proportions.

Unit- V: Test of Reasoning   8 hours
Verbal Reasoning

❋   Series Completion, Analogy

❋   Data Sufficiency, Assertion and Reasoning

❋   Logical Deduction

Non-Verbal Reasoning

❋   Series

❋   Classification

References

*   Aggarwal, R.S. *Quantitative Aptitude, S.Chand & Sons.*

*   Aggarwal, R.S. (2010). *A Modern Approach to Verbal and Non Verbal Reasoning*. S.Chand & Co., Revised Edition.

*   Alex, K. (2009). *Soft Skills*. New Delhi S. Chand & Company Ltd.

* Covey, Stephen. (2004). *7 Habits of Highly effective people*, Free Press.

* Egan, Gerard. (1994). *The Skilled Helper* (5th Ed). Pacific Grove, Brooks/Cole.

* Khera, Shiv (2003). *You Can Win*. Macmillan Books , Revised Edition.

* Murphy, Raymond. (1998). *Essential English Grammar*. 2nd ed., Cambridge University Press.

* Prasad, L. M. (2000). *Organizational Behaviour, S.Chand & Sons.*

* Ravindran, G., Elango, S.P.B., Arockiam, L. (2009). *Success through Soft skills*. IFCOT publications

* Sankaran, K. & Kumar, M. *Group Discussion and Public Speaking*. M.I. Pub, Agra, 5th ed., Adams Media.

* Schuller, Robert. (2010). *Positive Attitudes*. Jaico Books.

* Thamburaj, Francis (2009). *Communication Soft skills*. Grace Publications.

* Trishna's (2006). *How to do well in GDs & Interviews*, Trishna Knowledge Systems.

** Yate, Martin. (2005). H*iring the Best: A Manager's Guide to Effective Interviewing and Recruiting**

35

Sem. III   Hours/week : 4
12PCA3115   Credit : 3

PROGRAMMING IN JAVA

Objectives

♦ To understand the power of Java language in Internet programming.

Unit I:

An Overview of Java – Java language Fundamentals – classes and objects – constructors – Garbage collections – The Finalize method – method overloading – Recursion – this, static and final usage – Nested and inner class – Arrays – Inheritance – Method overriding – Abstract methods and abstract classes – final methods and final classes.   (12)

Unit II:

Packages – Interfaces –Exception Handling – String Handling – Object class – Exploring Java.lang package.   (12)

Unit III:

Util Packages – Multi threading –Thread priorities – Inter thread communications – Synchronization – Deadlocks.   (12)

Unit IV

I/O Streams – Byte stream class – Character stream class – Serialization – JDBC – Data manipulation.   (12)

Unit V

AWT: AWT Controls, layout mangers – Event handling – Applet: Applet architecture – HTML applet Tag –passing parameters to applet - java beans.   (12)

TEXT BOOK(S)

1. Herbert Schildt, Java 2 Complete Reference, Tata McGraw hill, Fourth Edition, 2001.

2. Ivan Bayross, Java 2.0 (Web enabled Commercial Application Development -BPB publications India, edition 2000, (Chapters 11, 13, 14 & 16 only).

BOOK(S) FOR REFERENCE

1.   Peter Norton & William Stack , "Guide to Java Programming", First Edition 1997, Techmedia publications, New Delhi.

2.   Lay S. HorstMann, Gray Cornell, "Core Java 1 & 2 – Fundamentals", 2nd Edition 2000.

3.   Scott daks & Henry, "Java Threads", 2nd Edition, Shroff Publishers & Distributors PVT Ltd.

Sem. III   Hours/week : 4
12PCA3116   Credit : 3

PROBABILITY AND STATISTICS

Objectives

♦   To give a detailed knowledge on Probability and Distribution theory and to give a brief introduction to the Theory of Hypothesis Testing and Applied Statistics.

Unit – I

Sample Space: Events - Probability - Probability axioms – addition and multiplication law of probabilities - conditional probability - independent events - Baye's theorem.   (12)

Unit – II

Random variables: distribution functions (discrete and continuous) - Joint probability distribution - Marginal and conditional distribution. Mathematical expectations - moment generating functions - Cumulants. Chebyshev's inequality. (12)

Unit – III

Discrete distributions: Binomial and Poisson - Continuous distributions: Uniform, Exponential and Normal. Correlation and Regression.   (12)

Unit – IV

Testing of hypothesis: Tests based on normal population. Applications of chi-square, Student's-T, F-distributions - Chi-square Test - goodness of fit - Test based on mean, means, variance, correlation and regression coefficients.   (12)

Unit – V

Analysis of variance (one way and two way classifications). Design of experiments – Principles of Design of Experiments – Completely randomized design - Randomized Block Design and Latin Square Design.   (12)

Note: Stress is given on the working of problems.

TEXT BOOK(S)

Units I, II, III, IV

1. S.C.Gupta and V.K.Kapoor, "Fundamentals of Mathematical Statistics", Sultan Chand & Sons, New Delhi, 11th edition, 2002.

Unit V

2. S.C. Gupta and V.K. Kapoor, "Fundamentals of Applied Statistics", Sultan Chand & Sons, New Delhi, Second Edition, 1978.

BOOK(S) FOR REFERENCE

1. Erwin Kryszig, "Introductory Mathematical Statistics", John Wiley & sons, New York, 1990.

2. J.S. Milton and J.C. Arnold, "Probability and Statistics in Engineering and Computer Science", McGraw Hill, New York, 1986.

Sem. III   *Hours/week : 4*
12PCA3117   *Credit : 3*

DATABASE SYSTEMS

Objectives

♦   To give the detailed knowledge about the Different Approaches to the Database System giving emphasis to Relational Approach and Concurrency Management

Unit – I

Introduction to DBS: Basic Concepts and Definitions – Data Dictionary – Database System – DBA – Database Languages – Database System Architecture: Schemas, Sub-schemas and Instances – Three-level Architecture – Data Independence – Mappings –Data Models – Types – ER Model – Specialization and Generalization – Relational Algebra and Calculus: Structure – Relational Algebra – Relational Calculus.   (12)

Unit – II

Relational Query Languages: Introduction – Codd's Rules – Information System Based Language – Structured Query Language (SQL) – Embedded SQL.   (12)

Unit – III

Normalization: Introduction to Database Design – Functional Dependency and Decomposition – Normalization – Normal Forms – BCNF – Multi-valued and Join Dependencies.   (12)

Unit – IV

Transaction Processing and Concurrency Control: Transaction Concepts – Concurrency Control – Locking Methods, Timestamp Methods and Optimistic Methods for Concurrency Control – Database Recovery System – Recovery Concepts – Types – Recovery Techniques – Buffer Management – Database Security – Goals of Database Security – Firewalls – Data Encryption.   (12)

Unit – V

Parallel Database Systems: Introduction to Parallel databases – Architecture – Key Elements of Parallel Database Processing – Query Parallelism – Distribution Database Systems – Distributed Databases – Distributed Query Processing – Concurrency Control in Distributed Databases – Recovery Control in Distributed Databases.

TEXT BOOK

SK Singh, "Database Systems Concepts, Design and Applications", Pearson Education, 2006.

BOOK(S) FOR REFERENCE

1. Abraham Silberschatz, " Database Systems", McGraw Hill International, 1997

2. CJ Date, "An Introduction to Database Systems", 6th Edn, Addison Wesley Publishing Company, New York, 1995.

Sem. III   Hours/week : 4
12PCA3118   Credit : 3

SOFTWARE ENGINEERING

Objectives

♦   To introduce the basic concepts of Software Engineering and the various phases in Software Development.

Unit – I

Introduction to Software Engineering: The Evolving Role of Software – Software – The changing nature of software – Software Myths. A Generic View of Process: A Layered Technology – Process Models: The Waterfall Model – Evolutionary Process Models. System Engineering: Computer-Based Systems – The System Engineering Hierarchy.   (12)

Unit – II

Requirements Engineering: Requirements Engineering Tasks – Initiating the Requirement Engineering Process – Eliciting Requirements – Building the Analysis Model – Requirements Analysis – Data Modeling Concepts – Flow Oriented Modeling – Class based Modeling – Creating a Behavioral Model.   (12)

Unit – III

Design Engineering: Design Process and Design Quality – Design Concepts – The Design Model. Creating an Architectural Design: Software Architecture – Data Design – Architectural Design – Mapping Data Flow into Software Architecture. Performing User Interface Design: The Golden Rules – User Interface Analysis and Design – Interface Analysis – Interface Design Steps – Design Evaluation.   (12)

Unit – IV

Testing Strategies: A Strategic Approach to Software Testing – Test Strategies for Conventional Software and Object Oriented Software – Validation Testing – System Testing – The art of Debugging. Testing Tactics: Software Testing Fundamentals –White

Box Testing – Basis Path Testing – Control Structure Testing – Black Box Testing – Object Oriented Testing Methods. (12)

Unit – V

Project Management: The Management Spectrum – The People – The Product – The Process – The Project. Estimation: The Project Planning Process – Resources – Software Project Estimation – Decomposition Techniques – Empirical Estimation Models. Project Scheduling: Project scheduling – Scheduling. Quality Management: Quality Concepts – Software Quality Assurance – Formal Technical Reviews. (12)

TEXT BOOK

Roger S Pressman, Software Engineering", McGraw Hill, International 6th Edn, New York, 2006.

BOOK FOR REFERENCE

Richard Fairley, "Software Engineering Concepts", McGraw Hill International Edn., 1996.

SOFTWARE LAB – V (JAVA)

* ❋ Classes and Objects
* ❋ Inheritance
* ❋ Polymorphism
* ❋ Packages and Interfaces
* ❋ Exception Handling
* ❋ Multithreading
* ❋ Util Package
* ❋ I/O Streams and File processing
* ❋ Networking
* ❋ Applet, AWT and Event handling
* ❋ JDBC
* ❋ Java Bean

SOFTWARE LAB –VI (RDBMS)

SQL

1. Simple queries using DDL, DML, and DCL

2. SQL functions

3. SET operations

4. View and Snapshots

5. Nested queries

PL/SQL

6. PL/SQL Block

7. Cursors

8. Database triggers

9. Subprograms and packages.

FORMS AND REPORTS

10. Designing oracle forms with menus, buttons and LOVs

11. Master-Detail form design.

12. Developing oracle reports (Tabular, Master/detail, Matrix and Mailing label)

IDC-II: COMPUTER APPLICATIONS FOR SOCIAL SCIENCES

Objectives

♦ To give an introduction to computers and to enable the students to appreciate computer applications in social science using MS-WORD, MS-EXCEL & MS-ACCESS.

Unit – I

WINDOWS: Widows basics - Starting Windows - Using Mouse - Menus - Running Programs - Switching Tasks - Recycle bin - Control Panel – Accessories: Paintbrush - Notepad - Explorer. (12)

Unit – II

WORD: Introduction - Editing Document - Move and Copy Text and Help System - Formatting Text and Paragraph - Finding and Replacing Text and Spelling Checking - Using Tabs - Enhancing Document - Columns, Tables and other Features - Using Graphics, Templates and Wizards - Using Mail Merge.   (12)

Unit – III

SPREADSHEET: Introduction to Excel - Getting Started - Editing Cells and Using Commands and Functions - Moving Copying, Inserting and deleting Rows and Columns - Getting help and Formatting a Worksheet - Printing the Worksheet - Creating charts.   (12)

Unit – IV

Overview of Power Point: What is PowerPoint-creating presentation - PowerPoint use - running a slide show - printing a presentation.   (12)

Unit – V

MS-ACCESS: Managing your Data with Access. Introduction to Access - Creating a Simple Database and Tables - forms - entering and editing data - finding, sorting and displaying data - printing reports.   (12)

TEXT BOOK(S)

1. Sanjay Saxena, "A First Course in Computers", Vikas Publishing House Pvt. Ltd., New Delhi: 2007

2. Ron Mansfield, "Working in Microsoft-Office", Tata McGraw-Hill Edition - 1997.

BOOK FOR REFERENCE

R.K. Taxali, "PC Software for Windows Made Simple", Tata McGraw- Hill Publishing Company Ltd., New Delhi: 1998.

IDC-II: FUNDAMENTALS OF PROGRAMMING

Objective

♦ To equip the programming skills through C Language and to understand and appreciate the Object Oriented Programming concepts.

Unit I:

Introduction: Importance of C -Basic structure of C programs - Programming Style. Constants, Variables and Data Types: Character set, Keywords and Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables.

Operators and Expressions: Arithmetic, relational, Logical, Assignment, Increment and decrement, conditional, bitwise, comma operators - Arithmetic expressions - Procedure and Associativity.(12)

Unit II:

Input Output Operator: getchar, putchar, Formatted output(printf) and formatted input (scanf) Control Structure: Decision making with if, if-else, switch, goto, break and continue statements, while, do while, for statements.

Arrays: One-dimensional and two-dimensional arrays, declaring arrays, storing arrays in memory - initialising arrays. (12)

Unit III:

Functions: Basic functions - Return values and their types - calling functions - function arguments - external variables and scope rules.   (12)

Unit IV:

Structures and Union: Structures - arrays of structures - arrays within structures - Structures - Structures and functions - Unions.(12)

Unit V:

Object Oriented Programming Concepts: Class – object – encapsulation – Data Abstraction – Data hiding – Reusability - Polymorphism: Over loading – Over riding.   (12)

TEXT BOOK(S)

1.   E. Balagurusamy, "Programming in ANSI C", Tata McGraw-Hill publishing company Ltd., New Delhi, Fourth edition, 2007.

2.   Robert Lafore, "Object-Oriented Programming In Microsoft C++", Galgotia Publications, New Delhi, 2000.

BOOK(S) FOR REFERENCE

1.   Yashwant Kanethkar, "Let us C", BPB publications, 2004.

2.   James Rumbaugh, "Object-oriented modeling and design", Prentice Hall, 1991.

PROGRAMMING WITH Win32 API and MFC

Objectives:

♦   To understand and explore the windows programming using Win32 API and MFC

Unit I

Windows and Messages: Architectural Overview – Registering the window - Create and display Window – Message Loop – Windows Procedure – Processing the messages – Playing a sound file – WM_ PAINT Message, WM_DESTROY Message. GDI : Introduction - Structure – Device context –Painting and repainting – GDI mapping modes – Basic drawing tools. Keyboard Basics: Messages – Character Message -The Caret – Mouse Basics: Client – Non Client Area mouse messages – Capturing the mouse.

Unit II

Child Window Controls: -Button class – Controls and Colors – Static Class –Scroll bar, Edit, List box -Classes. Menus: Menus and other resources – Icons -Cursor – String and custom resources - Keyboard Accelerators. Dialog boxes: Modal And Modeless – Common dialog boxes. Timer: -Basics - Methods.

Unit III

Fundamentals of Windows and MFC: Windows programming model - Introduction to MFC – MFC Application – Drawing in a window : Windows GDI – Drawing with GDI - Mouse and Keyboard : Mouse messages – keyboard messages – Menus : Basics – Shapes – Menu Magic - MFC Collection Classes – Arrays – Lists, Maps, Pointer, Classic Controls, Dialog box : Modal, modeless dialog box - Property sheets.

Unit IV

File : File I/O and Serialization – CFILE Class- CARCHIVE Class – Document –View Architecture : Fundamentals - Single

Document Interface - Scroll View – HTML View – List View – Multiple Document Interface – Splitter windows.

Unit V

Threads : Threads and Thread Synchronization – MFC Component Object Model – MFC and COM – ClipBoard and OLE : Legacy, OLE Clipboard – OLE Drag –Drop-ActiveX Controls:Basics –Building ActiveX Control – MFC application using Active X.

TEXT BOOK(S)

1. Charles Petzold, "Programming Windows", 5th Edition, Microsoft Press, 2002.

2. Jeff Proise, "Programming Windows with MFC", 2nd Edition, Microsoft Press, 2003.

BOOK(S) FOR REFERENCE

1. Jim Conger, "Windows Programming Primer Plus", Galgotia Publications, New Delhi, 1996.

2. Shirly Wodtke, "Learn MFC C++ Classes", BPB Publications, New Delhi, 1997.

3. Peter Norton and Rob McGregor, "Peter Norton's Guide to Windows 95/NT programming with MFC", Prentice-Hall of India, New Delhi, 1997.

Sem. IV   Hours/week : 4
12PCA4122   Credit : 3

ACCOUNTING AND FINANCIAL MANAGEMENT

Objective

♦   To present the Whole range of bookkeeping and accountancy and to give comprehensive coverage to management accounts.

Unit I

Accounting: Principles-Concepts-Conventions-Journals-ledger-trial balance.   (12)

Unit II

Trading account-profit and loss account- balance sheet-adjustments - error correction.   (12)

Unit-III

Depreciation; Meaning-need-methods of charging depreciation (straight line method, diminishing balance method) Tally: general frame work-accounting applications.   (12)

Unit IV

Marginal costing-break even analysis. - Standard costing-Analysis of variance.   (12)

Unit V

Budgeting: characteristics- advantages-classification-preparation of budgets. Capital budgeting: meaning-methods of capital investment decision-making.   (12)

BOOK (S) FOR STUDY

1.   T.S Grewal, "Double entry book keeping", sultan chand sons, New Delhi, 1986.

2.   S.N. Mahewari, 'Management accounting", Sultanchand sons, New Delhi, 1986.

BOOK(S) FOR REFERENCE

1.   M.C.Shukla, T.S. Grewal, "Advanced accounting', S.Chand and Company(pvt) Ltd.,Ram Nagar, New Delhi,1988.

2.   Mam Mohan and G.N. Goyal, "Principles of management accounting", Sahitya bhawan, Agra, 1986.

Sem. IV   *Hours/week : 4*
12PCA4123   *Credit : 3*

GRAPH AND AUTOMATA THEORY

Objectives

♦   To introduce the important features of Graph theory and the computer representation of graph, principles of formal languages and their relation to automata.

Unit – I

Graph Introduction: Paths and Circuits - isomorphism, Connected & Disconnected Graphs, Euler graphs - Operations on Graphs - Hamiltonian Paths & Circuits.   (12)

Unit – II

Trees and Fundamental Circuits: Properties of Trees, Rooted Binary Trees, Spanning trees. Matrix representation of Graphs -Incidence Matrix, Adjacency Matrix, Circuit Matrix - Fundamental Circuit Matrix.   (12)

Unit – III

Directed Graphs: Some types of digraphs, trees with directed edges. Graph Theoretic Algorithms - Computer representation of a Graph. Algorithms for connectedness & components, spanning tree, shortest path.   (12)

Unit – IV

Finite State Systems: Basic definitions - Non-Deterministic Finite Automata - Finite Automata with epsilon moves-Regular Expressions Applications of Finite Automata.   (12)

Unit – V

Motivation and Introduction: Context- Free Grammars – Derivation Trees - Chomskey Normal Form - Griebach Normal Form - The Pumping Lemma for CFL's.   (12)

TEXT BOOK(S)

1. Narsing Deo, "Graph Theory with applications to Engineering and Computer Science", Prentice-Hall of India Limited, New Delhi,1995.

2. John E.Hopcroft & Jeffery D.Ullman, "Introduction To Automata Theory, Languages and Computation", Narosa Publishing House, New Delhi,1997.

BOOK(S) FOR REFERENCE

1. John E.HopCroft & Jeffery D.Ullman, "Formal Languages and Their Relation to Automata", Addison - wesley publishing company, London, 1969.

2. Bernard Kolman & Robert C.Busby, "Discrete Mathematical Structure for Computer Science" Prentice Hall of India, New Delhi, 1987.

COMPUTER NETWORKS AND SECURITY

Objectives

♦   To provide a overall knowledge in computer communication networks and security concepts.

Unit I

Introduction: Definition for the networks-Uses of Networks - Network Architecture-protocol hierarchies - Service Primitives - OSI Reference Model - ARPANET - Internet - Physical Layer Transmission Media - Telephone Systems.   (12)

Unit II

Datalink layer: Datalink layer - Design Issues - Error Detection and Correction - Data Link Protocols - Sliding Window Protocols - Finite state Machine Model - Petri Networks-PPP-Polling - FDM.(12)

UNIT III

Network Layer: Design Issues - Routing Algorithms - Congestion Control Algorithms - Inter network Routing - Fragmentation.   (12)

Unit IV

Transport Layer - Design Issues - Elements of Transport Protocols - The Internet - Transport Protocol (TCP &UDP) - Application Layer: Design Issues.   (12)

Unit V

Information Security: Basics – Types of Attacks - Security Technologies - Firewall – Virtual Private Networks – Encryption – Intruder Detection.   (10)

TEXT BOOK(S)

1. Andrew S Tanenbaum, "Computer Networks", Prentice Hall of India, New Delhi,1999.

2. Eric Maiwald, " Network security – A Beginner's Guide", Tata McGraw Hill, second Edition, 2003.

BOOK FOR REFERENCE

Vijay Ahuja, "Design and Analysis of Computer Communication Networks", McGraw Hill, New York, 1985.

OPTIONAL: LINUX ADMINISTRATION

Objectives

♦   To understand the principles of Linux Operating System for effective System administration.

Unit I

Linux Introduction and Installation: Linux-Advantages-Red Hat Linux-New Features-Installation procedures and Methods. Using Desktop-GNOME-KDE-Linux Commands Accessing and Running Applications-Installing Red Hat Linux Applications, Running Window Application, Running Window, DOS and Macintosh Applications –Tools for using Internet and Web.   (12)

Unit II

Administration: Understanding System Administration: Root login-super user-GUI tools, commands and Log files-Configuring Hardware-File System and Disk Management-Monitoring performances. Setting Up and Supporting users: Creating user accounts – Setting user defaults – Creating Desktops-Modifying and Deleting Accounts.   (12)

Unit III

Security Issues: Hacker versus Cracker-Password Protection-Protection from break-in-Filtering Network Access-Firewalls-Detecting Instructions – Encryption techniques.   (12)

Unit IV

Networking: Setting up a LAN- LAN- Wireless-LAN-Understanding IP Addresses Connecting to Internet: Dial up connection- Red Hat Linux as a router-VPN connection-Red Hat Linux as a proxy server-proxy clients.   (12)

Unit V

Setting Up File Server: Setting up- NFS- Netware File Server Setting up a Web Server: Web Server- Starting Apache Web Server –

Configuring Apache Server – Starting and Stopping the Server – Monitoring Activities. (12)

TEXT BOOK

Christopher Negus "Red Hat Linux 9 Bible", WILEY-Dreamtech India Pvt. Ltd., New Delhi, First Edition, 2003.

BOOK FOR REFERENCE

Thomas Schenk, "Red Hat Linux System Administration", Techmedia, New Delhi, 2003.

Sem. IV   Hours/week : 4
12PCA4201B   Credit : 4

OPTIONAL: SYSTEMS PROGRAMMING

Objective

♦   To give an in-depth knowledge about systems concepts like DOS interrupts, BIOS and UNIX internals and UNIX Networking.

Unit I

BIOS and DOS services – DOS interrupts – DOS function requests – BIOS interrups.   (12)

Unit II

Programs, processes and Threads –Process in UNIX - UNIX I/O.   (12)

Unit III

Files and Directories – UNIX special files - Signals – Times and Times.   (12)

Unit IV

POSIX threads – thread Synchronization -Inter process communication.   (12)

Unit V

Connection Oriented Communication – Connectionless Communication and Multicast.   (12)

TEXT BOOK(S)

1.   Steven Armbrust and Ted Forgeron "Programmer's Reference Manual for IBM personal computers" Golgotia Publishers Pvt Ltd,New Delhi.

2.   Kay A. Robbins, "Steven Robbins Unix Systems Programming", First Indian Reprint 2004, Person Education Pte. Ltd., Delhi.

BOOK(S) FOR REFERENCE

1.   Sanjay K Bose, "Hardware and Software of personal computers", Wiley Eastern Ltd., New Delhi.

2.   Uresh Vahalia "UNIX Internals" First Indian Reprint 2004 Addition Wesely Longman Pvt. Ltd., New Delhi.

Sem. IV   Hours/week : 4
12PCA4201C   Credit : 4

OPTIONAL: SOFTWARE TESTING

Objective

♦   To give a Comprehensive Knowledge of Testing principles, Techniques and Tools.

Unit I

Principles of testing – software development life cycle models – white box testing – black box testing.   (12)

Unit II

Integration testing – system and acceptance testing – performance testing – regression testing.   (12)

Unit III

Testing of Object Oriented Systems – Usability and Accessibility testing – Common People Issues – Organization Structures for Testing Teams.   (12)

Unit IV

Test Planning, Management, Execution, and Reporting – Test Metrics and Measurements.   (12)

Unit V

Software Test Automation – Winrunner – LoadRunner – Metrics Tools.   (12)

TEXT BOOK

Srinivasan Desikan, Gopalaswamy Ramesh, "Software Testing – Principles and Practices", Pearson Education Publishers, First Impression, 2006.

BOOK FOR REFERENCE

Boris Beizer, "Software Testing Techniques", Dreamtech Press, Second Edition, 2000.

Sem. IV   Hours/week : 4
12PCA4201D   Credit : 4

OPTIONAL: COMPONENT PROGRAMMING

Objective

♦   To understand the concept of components, component programming and the implementation of components in different platforms.

Unit I

Components – component benefits – requirements – COM – Interface – implementing a COM interface – interface theory – Behind the interface - ActiveX.

Unit II

EJB: Components of EJB – Enterprise bean on server side – Session beans: statefull and stateless – Interfaces: Home and Remote.

Unit III

Entity Beans – persistence – Bean managed and container managed – JNDI – message driven beans – deployment – security issues.

Unit IV

Web Services: SOAP – Service creation - Service Description – Service Discovery – Advanced web services.

Unit V

Component based Programming in DOTNET: creating a simple component – component class – usage – database components – using COM components.

TEXT BOOK(S)

1.   Justin Couch and Daniel H. Steinberg, "J2EE Bible", Wiley India Pvt Ltd, New Delhi, 2002.

2.   Paul Tremblett, "Instant Enterprise Java Beans", Tata McGraw Hill Publishing Company, New Delhi, 2001.

3.   Date Rogerson, "Inside COM", Microsoft Press.

4. Matthew MacDonald, "The Complete Reference – ASP.NET", Tata McGraw Hill, New Delhi, 2002.

BOOK(S) FOR REFERENCE

1. Budi Kurniawan, "Java for the Web with Servlets, JSP, and EJB", Sams Publishing, 2002.

2. Eric Newcomer, "Understanding Web services: XML, WSDL, SOAP, and UDDI", Addison-Wesley, 2002.

3. James McGovern, "Java Web services architecture", Morgan Kaufmann, 2003.

Sem. IV   Hours/week : 4

12PCA4201E   Credit : 4

OPTIONAL: DATABASE ADMINISTRATION

Objective

♦   To give the principles and practices of Database Administration.

Unit I : Database Architecture

Database Architecture – An overview of Databases and Instances – Internal Data structure – Internal memory structure – External and Process structures.   (12)

Unit II : Database Design

Database implementation - Stand-Alone hosts – Networked hosts – Logical database layouts – Physical database layouts. (12)

Unit III : Database management

Managing the development process – Monitoring multiple Databases – Managing Rollback segments.   (12)

Unit IV : Database Security and Recovery

Database Tuning – Database security and Auditing – Optimal Backup and Recovery procedures.   (12)

Unit V Advanced DBA

Managing Distributed Databases - DBA commands - Guidelines for Client - Server Environments.   (12)

Prerequisites

Relational Data models - Relational algebra - Relational calculus - Normalizations - Relational DBMS - Network fundamentals.

TEXT BOOK

Kevin Loney, "Oracle DBA Handbook", Oracle Press & Tata McGraw Hill Edition, 1997.

BOOK FOR REFERENCE

Freeman, Robert, "Portable DBA: Oracle", Tata Mcgraw Hill, 2005.

SOFTWARE LAB – VII (VC++)

1. Creating a Overlapped Window using Windows API.

2. Display Text, Draw Lines, Elipse, Circles on capturing the Mouse messages using Windows API.

3. Maximize, Minimize the Window, Change the cursor shapes using Menus, find and change the status of the menu items using Windows API.

4. Create a Overlapped window by deriving the classes from the MFC base classes without using the tools. Register your own window, create your own cursors and icons.

5. Display Text and bitmaps, Draw lines, elipse, circles for different mouse messages by mapping the messages - do not use the class-wizard.

6. Design a Student information dialog box having all the controls Create student file and display the student information using SDI and serialization.

7. Database operations using DAO/ODBC.

8. Programming in OLE and ActiveX.

9. A Simple COM Program.

SOFTWARE LAB – VIII (PHP /MYSQL)

PHP

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.

PHP / MYSQL

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

5. Develop a college application form using MYSQL table.

PHP ADVANCE CONCEPTS

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.

Sem. IV   *Hours/week : 2*
12PCA4128   *Credit : 3*

SKILL BASED COURSE-II: QUANTITATIVE APTITUDE

Objective

♦ To revise and master the basic techniques of arithmetic operations so that these skills will augment to their professional capacity.

Unit I

Numbers, HCF, LCM, Decimal Fractions, Simplification, Square Roots, Cube roots, Averages, Problems in numbers and ages.

Unit II

Surds, Indices, Percentages, Profit and Loss, Ratio and Proportion, Partnership, Chain Rule, Time and Work, Pipes and Distances.

Unit III

Time and distance, Problems on Trains, Boats and Streams, Alligation, Simple Interest, Compound Interest, Logarithms, Area.

Unit IV

Volume and Surface Area, Races and Games of Skill, Calendar, Clocks, Stocks and Shares, Permutation and Combination, Probability.

Unit V

True discount, Banker's Discount, Height and Distances, Old man out and Series, Tabulation, Bar graphs, Pie charts, Line Graphs.

Books for Study

R.S. Aggarwal, "Quantitative Aptitude for Competitive Examinations", Seventh Revised Edition, S. Chand and Co. Ltd., New Delhi, 2005.

Books for Reference

Barron's Guide for GMAT, Galgotia Publications, New Delhi, 2006.

Sem. V   *Hours/week : 4*
12PCA5130   *Credit : 3*

DISTRIBUTED TECHNOLOGIES

Objective

♦   To know the architectures of Distributed systems, to understand and compare the technologies associated with J2EE and DOTNET.

Unit I:

Client server architecture: 2-tier model – 3-tier model – n-tier model – J2EE architecture – DOTNET architecture – MVC architecture – struts framework.
   (12)

Unit II:

Presentation services: Servlet – JSP – Javamail – Interaction services: RMI – CORBA – XML – JMS.   (12)

Unit III:

Component model: EJB : Session Beans : Stateless and Stateful – Entity Beans – CMP and BMP - Message Driven Beans.   (12)

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.(12)

Unit V:

ASP.NET and ADO.NET: System.Data, SqlClient and Xml namespaces – Provider objects and Consumer objects – Disconnected data access – GridView FormView.   (12)

TEXT BOOK(S)

1.   Justin Couch, Daniel H.Steinberg, "J2EE Bible", Wiley India(P) Ltd., New Delhi, 2002.

2.   Paul Tremblett, "Instant Enterprise Java y - Beans", Tata McGraw Hill Publishing Company, New Delhi, 2001

3.   Platt S David, "Introducing Micorsoft .Net", Prentice Hall of India, New Delhi, 2003.

BOOK(S) for Reference:

1.   Stephanie Bodoff, Dale Green, Eric Jendrock, "The J2EE tutorial", Addison-Wesley, 2002.

2.   Hitesh Seth, "Microsoft .NET: kick start", Sams Publishing, 2004.

Sem. V   Hours/week : 4
12PCA5131   Credit : 3

COMPUTER ORGANIZATION AND ARCHITECTURE

Objectives

♦   To give basic knowledge on various building blocks of a typical digital computer and programming concepts for Intel 8051 micro controller.

Unit – I

Basic Computer Organisation and Design: Instruction codes - Computer registers - Computer Instructions - Timing and Control - Instruction cycle - Memory reference instructions - Input/output & Interrupt - Design of Basic Computer - Design of Accumulator Logic. Microprogrammed control: Control memory - Address sequencing - Micro program example - Design of control unit. (12)

Unit – II

CPU: General register organisation - Stack organisation - Instruction formats - Addressing modes - data transfer and manipulation - Program Control - RISC. Pipeline & Vector Processing: Parallel processing - Pipelining - Arithmetic pipeline - Instruction pipeline - RISC pipeline - Vector processing -Array processors.   (12)

Unit –III

Computer Arithmetic: Addition, Subtraction, Multiplication and Division algorithms - Floating point arithmetic operations - Decimal arithmetic unit - Decimal arithmetic operations.   (12)

Unit IV

Microprocessors : Evolution – Intel's 8 bit processors – Intel's 16 bit processors – architecture - features – comparison.   (12)

Unit V

The 8051 Micro Controller: 8051 Hardware– The 8051 oscillator and clock – program counter and data pointer – A and B

CPU registers – PSW – internal memory – internal RAM – The stack and stack pointer – special function registers – internal ROM. (12)

TEXT BOOK(S)

Units I, II, III

1.	M. Morris Mano, "Computer System Architecture", Third Edition, Prentice Hall of India, New Delhi, 2003.

Units IV

2.	Barry B Brey, "The Intel Microprocessors 8086/8088, 80186, 80286, 80386, 80486, Pentium and Pentium Pro processors Architecture, Programming and Interfacing", Prentice Hall of India, New Delhi, 2002.

Units V

3.	Kenneth J. Ayala, "The 8051 Microcontroller Architecture, Programming & Application", Second edition , Penram International (India) Pvt Ltd, Mumbai, 1996.

BOOK(S) FOR REFERENCE

1.	Muhammad Ali Mazidi and Janice Gillispie Mazidi, "The 8051 Microcontroller and Embedded Systems", Pearson Education Inc, New Delhi, 2000.

Sem.V   *Hours/week:4*
12PCA5202A   *Credit : 4*

OPTIONAL: PRINCIPLES OF PROGRAMMING LANGUAGES

Objective

♦ To present the underlying principles in design and implementation of various programming languages.

Unit I:

The study of programming languages: Need for the study-history - characteristics of good language- Effects of environments on languages. Language design issues: Structure and operation of computer - virtual computer and binding times-language paradigms. Language translation issues: programming languages syntax-stages in translation - formal translation models. (12)

Unit II:

Data types: Properties of types and objects-Elementary data types-structured data types. (12)

Unit III:

Encapsulation: Abstract data types - encapsulation by subprograms - Type definitions - storage management. Sequence control: Implicit and explicit control - Sequencing with arithmetic and non arithmetic expressions - sequencing control between statements. (12)

Unit IV:

Subprogram control: Subprogram sequence control-attributes of data control - shared data in subprograms. Inheritance: More on abstract data types - derived classes - methods - abstract classes - objects and messages - abstraction concepts - polymophism. (12)

Unit V:

Advances languages designs: variations on subprogram control - Parallel programming - formal properties of languages-language semantics - hardware developments - software architecture-programming language trends. (12)

TEXT BOOK

Terrance W. Pratt, Marvin V.Zelkowitz, "Programming languages design and implementation", prentice hall of India Pvt. Ltd., New Delhi, 3rd edition, 1996.

BOOK(S) FOR REFERENCE

1. R.D. Tennent, 'Principles of programming Languages", Meera Publications, New Delhi, 1983.

2. Ellis Horowitz, " Fundamentals of Programming Languages", Meera publications, New Delhi, 1999.

Sem. V   *Hours/week : 4*
12PCA5202B   *Credit :4*

OPTIONAL: PRINCIPLES OF COMPILER DESIGN

Objectives

♦ To introduce the various phases of a compiler and also to develop skills in designing a compiler.

Unit – I

Different phases of a compiler - finite state automation and lexical analysis - a simple approach to the design of lexical analyzers - regular expressions NFA-DFA-reduced DFA- implementation of lexical analyzer- a language for specifying lexical analyzers. (12)

Unit – II

Context free grammars - Parsers - derivation and parse trees - shift - reduce parsing - operator-precedence parsing - top-down parsing - predictive parsers. (12)

Unit – III

Intermediate code generation - translation -implementation of syntax -directed translators - intermediate code - postfix notation - parse trees and syntax trees - three-address codes, quadruples and triples - Translation of assignment statements. (12)

Unit – IV

Symbol tables - data structures for symbol tables - implementation of a simple stack allocation scheme - implementation of block structured languages - errors - lexical phase error. (12)

Unit – V

Code optimization and code generation: Elementary code optimization technique - loop optimization - DAG representation of basic blocks - value numbers and algebraic laws - object programs- problems in code generation - A Machine model - A simple code Generator. (12)

TEXT BOOK

Alfred V. Aho, Jeffery D.Ullman, "Principles of Compiler Design", Narosa Publishing House, New Delhi, 1985.

BOOK(S) FOR REFERENCE

1. William A.Barrett, Rodney M.Bates, David A.Gustafson and John D.Couch-"Compiler Construction Theory and Practice", Galgotia Publishing Co., 1990.

2. Jean-Paul Trembley and Paul G. Sorenson, "The Theory and Practice of Compiler Writing", McGraw Hill, 1985.

OPTIONAL: COMPUTER GRAPHICS

Objective:

♦   To offer concepts on basic graphical techniques, raster graphics, two-dimensional graphics and basic concepts of multimedia.

Unit I

Introduction – Point plotting techniques – Line drawing displays – Two-dimensional displays – Clipping and Windowing. (12)

Unit II

Graphics package – segmented display files – display file compilation – geometric models – Picture structure.   (12)

Unit III

Graphical input units – graphical input techniques – event handling – input functions.   (12)

Unit IV

Raster graphics fundamentals – solid area scan conversion – interactive raster graphics – Raster graphics systems – raster display hardware.   (12)

Unit V

Realism in three-dimensional graphics – display processors – device independent graphics systems – user interface design.   (12)

TEXT BOOK

William M. Newman, Robert F. Sproull, "Principles of Interactive Graphics Systems", McGraw Hill Book Company, 2nd edition, 1986.

BOOK(S) FOR REFERENCE

1.   S. Harrington, "Computer Graphics", McGraw Hill, 1988.

2.   Dennis Harris, "Computer Graphics and Applications", Chapman and Hall, London, 1984.

Sem. V   Hours/week : 4
12PCA5202D   Credit :   4

OPTIONAL: PRINCIPLES OF SOA AND BPM

Objective:

♦   To impart and expertise students with the principles of web services through Service Oriented Architecture and Business Process Modeling

UNIT – I

XML – XML structure –XSL – CSS - XML Schema - DTD – XPATH – XML Parsing – DOM and SAX.   (12)

UNIT – II

Web services– WSDL - SOAP – UDDI-Synchronous and Asynchronous- C# and Java sample.   (12)

UNIT-III

SOA – Security – Authorization – Authentication –WS-* standards.   (12)

UNIT-IV

BPM – Orchestration-Choreography-WSBPEL-BPMN.   (12)

UNIT-V

Cloud computing-Scalability – Reliability-Storage scalability-computing scalability – Case Study: Amazon, Windows Azure and SednaSpace.   (12)

TEXT BOOK(S)

1.   Mike Jasnowski, Java, XML and web services, IDG Books India Ltd., 2002.

2.   Chodavarapu, SOA Security,Wiley Dream Tech, 2008.

3.   Micheal Havey, Essential Business Process Modelling, OREILLY, 2005.

4.   Jennings, Cloud computing with the windows azure platform, John Wiley India, 2009.

BOOK(S) FOR REFERENCE

1.   Elliotte Rusty Harold, "XML 1.1 bible", Wiley, 2004.

2.   Thomas Erl, "Service-oriented architecture: concepts, technology, and design", Prentice Hall Professional Technical Reference, 2005.

Sem. V   *Hours/week : 4*

12PCA5132   *Credit : 3*

MANAGEMENT INFORMATION SYSTEMS & ERP

Objectives

♦ To give an understanding of the importance of Information Systems, how it relates to managerial end-users and the vital role of Information Technology in business and to impart the knowledge on evolution implementation and advantages of an ERP System.

Unit – I

Introduction to Information Systems (IS) - why study IS - why business need Information Technology (IT) - Fundamentals of IS concepts - overview of IS - solving business problems with IS - developing IS solutions.   (12)

Unit – II

Information Systems for Business operations - Business IS - Marketing, manufacturing, human resource, accounting and financial information systems - transaction processing system - management information and decision support systems.   (12)

Unit – III

Managing Information Technology - managing information resource and technologies - Global IT management - planning and implementing business change with IT.   (12)

Unit – IV

Enterprise Resource Planning (ERP): an overview - benefits of ERP - ERP and related technologies - Business process reengineering - data warehousing - datamining - online analytical processing - supply chain management.   (12)

Unit – V

ERP implementation: ERP implementation life cycle - implementation methodology - hidden cost - organizing the implementation - vendors, consultants and users contracts with

vendors, consultants and employees project management and monitoring - ERP present and future - turbo charge the ERP systems - Enterprise Integration Applications - ERP and E-commerce - ERP and Internet. (12)

TEXT BOOK(S)

Unit I, II, III

1. James A O'Brien, "Management Information Systems for managing IT in the Internetworked Enterprise", 4th edition, Tata McGraw Hill Publishing Company Limited, New Delhi, 1999.

Unit IV, V

2. Alexis Leon, "ERP Demystified", Tata McGraw Hill Publishing Company Limited, New Delhi, 2000.

BOOK FOR REFERENCE

W.S. Jaswadekar, "Management Information Systems", Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1998.

Sem. V   Hours/week : 4
12PCA5133   Credit :3

UNIFIED MODELING TECHNIQUES

Objectives

♦   To specify, visualize, construct and document the artifacts of a software systems.

UNIT I

UML: Introduction to UML – Basic Structural Modeling: Classes – Relationships-Common Mechanism – Diagrams – Class diagrams.   (12)

UNIT II

Advanced Structural Modeling: Advance classes – Advance relationships – Interfaces - Types and Roles – Packages - Instances – Object diagrams.   (12)

UNIT III

Basic Behavioral Modeling – Interactions – Use Cases –Use Case diagrams- Interaction Diagrams – Activity diagram.   (12)

UNIT IV

Advanced Behavioral Modeling: Events and Signal – State machines – Process and Threads – Time and Space – State chart diagrams. Architectural Modeling – Components –Deployment – Collaborations- Patterns and frame works – Deployment diagrams – Systems and Models -Rational Unified Process.   (12)

UNIT V

The Unified Process – The four P's (People, Project, Product and Process in Software development) – Use Case driven process - An Architecture - Centric Process – An Iterative and Incremental Process.   (12)

TEXT BOOK(S)

Units I, II, III, IV

1. Grady Booch, James Rumbaugh and Ivar Jacobson, "The Unified Modeling Language User Guide", Addison – Wesley Longman Pvt.Ltd., Singapore, 2001

Unit V

2. Grady Booch, James Rumbaugh and Ivar Jacobson, "The Unified Software Development Process", Addison – Wesley Longman Pvt. Ltd., Singapore, 1999.

BOOK FOR REFERENCE

Grady Booch, James Rumbaugh and Ivar Jacobson, "The Unified Modeling Language Reference Manual", Addison Wesley Longman Pvt. Ltd., Singapore, 2000.

SOFTWARE LAB – IX (DISTRIBUTED PROGRAMMING)

1. RMI

2. Servlets (Returning Information)

3. Servlets and JDBC

4. JSP

5. JSP and java Class

6. EJB: Session Bean

7. EJB: Entity Bean

8. ASP.NET: Server & Client side controls

9. ASP.NET and ADO.NET

10. DOM usage on the server side

11. AJAX:Client request & Server response

Sem. V Hours/week : 3
12PCA5135 *Credit : 3*

SOFTWARE LAB – X (XML / WML)

1. Create a markup with XML: Day planner application.

2. Writing DTD for Day planner application using XML.

3. Writing a Microsoft XML Schema for Day planner application.

4. Modify the Day planner application using DOM (Document Object Model).

5. Writing SAX with day planner application.

6. Develop a XML messenger: Client /Server side.

7. Create a simple WML page.

8. Create a simple WML page using events and functions.

9. Create a client /server communication using GET/POST method using WML.

10. Create a WML script using Servlets.

Sem. V   *Hours/week : 3*
12PCA5136   *Credit : 3*

COMPREHENSIVE STUDY

Objective:

To consolidate the understanding of the basics through frequent tests and interaction. Emphasis is on the concepts and fundamentals and the orientation is towards placement.

Unit I: C Debugging – Object Oriented Programming.   (9)

Unit II: Operating Systems.   (9)

Unit III: Data Structures – Algorithms.   (9)

Unit IV: Database Concepts - Software Engineering.   (9)

Unit V: Web Technologies – Networking.   (9)

BOOK (S) for reference

1. Robert Lafore, "Object Oriented programming in Microsoft C++", Galgotia Publications, New Delhi, 2000.

2. Andrew S. Tanenbaum, "Modern Operating Systems", Prentice Hall of India Private Ltd., New Delhi, 1997.

3. Ellis Horowitz and Sartaj Sahni, "Fundamentals of computer algorithms", Galgotia Publications, New Delhi, 1985.

4. Roger S Pressman, Software Engineering", McGraw Hill, International 6th Edn, New York.

5. Andrew S Tanenbaum, "Computer Networks", Prentice Hall of India, New Delhi, 1999.

Sem. VI   *Hours/week: 30*
12PCA6501   *Credit : 20*

MAJOR PROJECT

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INTER DEPARTMENTAL COURSE – IDC

BIOCHEMISTRY

12PSK2401	SOFT SKILLS
12PBI3402	FIRST AID MANAGEMENT

BIOTECHNOLOGY

12PSK2401	SOFT SKILLS
12PBT3402	APPLIED BIOTECHNOLOGY

BOTANY

12PSK2401	SOFT SKILLS
12PBO3402	HORTICULTURE & LANDSCAPING

CHEMISTRY

12PSK2401	SOFT SKILLS
12PCH3402	HEALTH CHEMISTRY

COMMERCE

12PSK2401	SOFT SKILLS
12PCO3402	FINANCIAL ACCOUNTING FOR MANAGERS

COMMERCE (CA)

12PSK2401	SOFT SKILLS
12PCC3402	CAREER PLANNING AND MANAGEMENT

COMPUTER APPLICATIONS

12PSK2401	SOFT SKILLS
12PCA3402	COMPUTER APPLICATIONS FOR SOCIAL SCIENCES
12PCA3403	FUNDAMENTALS OF PROGRAMMING

COMPUTER SCIENCE

12PSK2401	SOFT SKILLS
12PCS3402A	FLASH
12PCS3402B	WEB DESIGN

ECONOMICS

12PSK2401	SOFT SKILLS
12PEC3402	INDIAN ECONOMY

ELECTRONICS

12PSK2401	SOFT SKILLS
12PEL3402	COMPUTER HARDWARE

ENGLISH

12PSK2401	SOFT SKILLS
12PEN3402	ENGLISH FOR MEDIA STUDIES

HISTORY

12PSK2401	SOFT SKILLS
12PHI3402	INDIAN CONSTITUTION

HUMAN RESOURCE MANAGEMENT

12PSK2401	SOFT SKILLS
12PHR3402	FUNDAMENTALS OF HRM

INFORMATION TECHNOLOGY

12PSK2401	SOFT SKILLS
12PIT3402A FLASH	
12PIT3402B	WEB DESIGN

MATHEMATICS

12PSK2401	SOFT SKILLS
12PMA3402	OPERATIONS RESEARCH

PHYSICS

12PSK2401	SOFT SKILLS
12PPH3402	MODERN PHOTOGRAPHY

TAMIL

12PSK2401	நுண்வகைமைத்திறன்கள்
12PTA3402	அரசுப்பணித்தேர்வுத் தமிழ் - I