

SEMESTER SYSTEM 2009
SYLLABUS FOR B Sc(CS) , B Sc(IT) AND B Sc(C.MAINT.)

CLASS ----- / SEMESTER	B.Sc.(CS) / B.Sc.(CMAIN.)	B.Sc.(IT)	CCE 30 %	MIN. MARKS	TERM END EXAM 70%	MIN. MARKS	TOTAL 100%	MIN. MARKS
FIRST SEM.	CS-1201 PROGRAMMING AND PROBLEM SOLVING THROUGH C LANG. – I	CS-1201 PROGRAMMING AND PROBLEM SOLVING THROUGH C LANG. – I	15	5	35	12	50	17
	CS-1002 FUNDAMENTALS OF COMPUTING	CS-1002 FUNDAMENTALS OF COMPUTING	15	5	35	12	50	17
	CS-1201A PRACTICAL ON C	CS-1201A PRACTICAL ON C AND PC SOFTWARE	----	----	----	----	50	17
SECOND SEM.	CS-1202 PROGRAMMING AND PROBLEM SOLVING THROUGH C LANG. – II	CS-1202 PROGRAMMING AND PROBLEM SOLVING THROUGH C LANG. – II	15	5	35	12	50	17
	CS-1003 DIGITAL COMPUTER ORGANISATION	CS-2401 INTRODUCTION TO INFORMATION SYSTEM	15	5	35	12	50	17
	NA	CS-1501 OPERATING SYSTEM BASICS & PC PACKAGES	15	5	35	12	50	17
	PRACTICAL ON C AND PC SOFT.	PRACTICAL ON C AND WIN,UNIX	----	----	----	----	50	17
THIRD SEM. (FOR HONS.)-----	CS-2204 DATA STRUCTURE - I	CS-2204 DATA STRUCTURE - I	15	5	35	12	50	17
	CS-3605 WEB TECH. AND PROG	CS-3605 WEB TECH. AND PROG	15	5	35	12	50	17
	CS-2204A & CS-3605A PRACTICAL ON DATA STRUCTURE USING C AND WEB PROG.	CS-2204A & CS-3605A PRACTICAL ON DATA STRUCTURE USING C AND WEB PROG.,LAN ,WIN2000	----	----	----	----	50	17
	CS-3506 UNIX PROGRAMMING	NA	15	5	35	12	50	17
FOURTH SEM. (FOR HONS.)-----	CS-4209 DATA STRUCTURE - II	CS-4209 DATA STRUCTURE - II	15	5	35	12	50	17
	CS-2402 DBMS FUNDAMENTALS	CS-2402 DBMS FUNDAMENTALS	15	5	35	12	50	17
	NA	LAN AND WINDOWS 2000 ADMINISTRATION	15	5	35	12	50	17
	CS-4209 & CS-2402A PRACTICAL ON DATA STRUCTURE USING C AND DBMS	CS-4209 & CS-2402A PRACTICAL ON DATA STRUCTURE USING C AND WEB PROG.	----	----	----	----	50	17
	CS-3507 SYSTEM PROGRAMMING		15	5	35	12	50	17

PS :- CCE ----- CONTINUOUS COMPREHENSIVE EVALUATION, INDIVIDUAL PASSING REQUIRED FOR THEORY AND PRACTICAL SUBJECT.

Detailed Syllabus of
B.Sc.(Computer Science) ,
B. Sc.(Computer Maintenance)
and
B.Sc.(IT)
Session - 2009

B.Sc. - CS-1201
Programming and Problem solving through 'C'-I

Objective:

The objective of this course is to make the student understand programming language concepts, mainly control structures, reading a set of data, stepwise refinement, function, control structure and arrays. After completion of this course, the student is expected to analyze the real life problem and write a program in 'C' language to solve problem. The main emphasis of the course is on problem solving aspect that is, developing proper algorithms.

Examination:

The External examination will be of 35 marks. The question paper will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate Numerical/objective/conceptual/analytical/theoretical) combination of subsection in each question.

Unit-I

Algorithm for problem solving: An Introduction, Properties of an algorithm, Classification, Algorithm logic, Flowchart.

Program design and implementation issues: programming, system design techniques, programming techniques, basic constructs of structured programming, modular designing of programs.

Programming environment: High level programming language, low level programming language, middle level programming language, Assembler, Compiler, Interpreter.

Unit-II

What is C: Historical development of C, where C stands, Getting started with C: The C character Set Types of C constants, Types of C Variables, C keywords, identifiers, literals.

C instructions: Type Declaration Instruction, Arithmetic Instruction, integer, long, short, signed unsigned, storage classes, Integer and Float Conversions, type conversion in assignment, hierarchy of operations.

Unit-III

Decision control structure: control instructions in C, if, if-else, use of logical operators, hierarchy of logical operators, arithmetic operators, relational operators, assignment operator, increment and decrement operators, conditional operators, bit wise operators, special operator "&*, ., ->, size of".

Loop control structure: while loop, for loop, do-while loop odd loop, nested loop, break, continue, case control structure, goto, exit statement.

Unit-IV

Arrays: what are arrays, array initialization, bound checking, 1D array, 2D array, initialization of 1D and 2D array, memory map of 1D and 2D array, multidimensional array.

Strings: What are strings, standard library string functions: strlen(), strcpy(), strcat(), strcmp(), 2D array of characters.

Unit-V

Structure: Why use structure, declaration of structure, accessing structure elements, how structure elements are stored, array of structure, uses of structure.

Preprocessor: Features of C preprocessor, Macro expansion, Macro with arguments, file inclusion, conditional compilation #if #elif miscellaneous directives #undef #pragma directives

Books:

1. Programming with ANSI and Turbo C -kamthane- Pearson education
2. Let us C by Y Kanetkar (BPB)
3. Programming and Problem solving through 'C'. (ELSEVIER)(for UNIT I)
4. Programming in 'C'. E. Balaguruswami (TATA McGRAW Hill)
5. The C Programming Language by Brain W Kernigham and Dennis M Ritchie
6. Practical C programming, 3rd Edition (A Nushel Handbook) O' Really

B.Sc. - CS-1002
Fundamentals of Computing

Objective:

Fundamentals of Computing provides a clear, concise introduction to the fundamentals of computer science. The course contents generate excitement, curiosity, and enthusiasm in students to learn more about the fascinating world of computing.

Examination:

The External examination will be of 35 marks. The question paper will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (Numerical/objective/conceptual/ analytical/theoretical) combination of subsection in each question.

Unit-I

What is Computer Science, Evolution of the Computer, importance of computers, van Newman model of computer , Block diagram of computer, generation of computer, computer for individual users(define) - desktop, workstations, notebook, tablet pc ,handheld pc and smart phone, Computer for organization(define) - network servers, mainframe computers, mini computers and super computer, Define power PC.

Unit-II

Types of software and their uses, Number Systems - Decimal , Binary, Hexadecimal and Octal and conversion of all number systems , character coding system - BCD Codes, ASCII and EBCDIC and Gray code.

Computer word.

Unit-III

Fixed point representation - integer storage, largest integer storage, Negative integer storage representation ,floating point representation, overflow and underflow.

Digital and Analog quantities, Binary digits, logic levels, digital wave forms - Timing diagram, Data Transfer, Basic logic operations.

Unit-IV

CPU organization , function of CU, function of ALU, CPU instruction, types of Buses,size of cpu registers - program counter, memory address register, memory data register, Accumulator.

Input-Output devices - Architecture of keyboard, mouse, light pen, video input(touch screen), joystick, track(space) ball, micr, ocr, omr, webcam scanner, types of monitor, plotter, types of printer, Voice output device.

Unit -V

Memory - types of primary(main) memory, types of secondary memory, cache memory, physical and Virtual memory, types of optical memory, RAM disks.

Addressing modes - Direct addressing, Indirect addressing, Indexed Addressing, Immediate Addressing modes.

Books:

1. Digital fundamentals - Floyd & Jain - Pearson Education
2. Introduction to computers - Norton - McGraw Hill
3. computer fundamentals - B.Ram - New Age International
4. computer fundamentals - jaggi and jain

BSC - CS-1003
DIGITAL COMPUTER ORGANISATION

Objective:

The objective of this course is to cover the basic concepts of digital design in a clear, and concise manner. The basic building blocks needed for the design of a micro processor are covered

Examination:

The External examination will be of 35 marks. The question paper will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (Numerical/objective/conceptual/ analytical/theoretical) combination of subsection in each question.

Unit-I

Binary number - Addition, subtraction, multiplication and division, 1s complement , 2's complement, 9's complement, 10's complement.

Logic Gates - Inverter, OR, AND, NOR, NAND, Exclusive OR , Exclusive AND , Universal gate.

Unit -II

Boolean Algebra - definition ,boolean operation and expression, laws and rules of Boolean algebra, Demorgan's theorems.

constructing a truth table for logic gates and circuits, simplification circuits using Boolean algebra,

Unit -III

K-MAP for two,three and four variables, SOP form, POS form.

Half adder and Full adder.

Flip Flop - latches, RS , Master slave, D and T flip flop.

Unit - IV

Multiplexer, DeMultiplexer, Encoder , Decoder and their Applications.

Registers - types of shift registers and types of Counters.

UNIT - V

Microcomputer Organisation, microprocessor organization, instructions, stack subroutine and interrupt.

Memory organization, input-output interface, DMA- control signals for DMA transfers,Block diagram of DMA controller, DMA transfer in a microcomputer system.

Books :

1. Digital fundamentals - Floyd & Jain - Pearson Education
2. Introduction to computers - Norton - McGraw Hill
3. computer fundamentals - B.Ram - New Age International
4. Digital fundamentals - Floyd & Jain - Pearson Education
5. computer fundamentals - jaggi and jain
6. Digital logic and computer design - morris mano - PHI

BSC - CS-1202
Programming and Problem solving through 'C'-II

Objective:

The objective of this course is to make the student understand advanced programming language concepts, and apply those concepts to solve complex real-life problems. Also, the advanced topics in C language, like pointers and files are to be covered.

Examination:

The External examination will be of 35 marks. The question paper will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (Numerical/objective/conceptual/ analytical/theoretical) combination of subsection in each question.

Unit-I

Functions: what is function, why use function, passing values between functions, scope rule of functions

Advance features of function: function declaration and prototypes, call by value, and call by reference, back to function calls, macro verses function, Recursion, need of recursion, types of recursion.

Unit-II

Pointers: what is pointer, pointer assignment, pointers and arrays, passing entire array to function, pointers and 2D array, pointers array, pointer to array, array of pointers to string, pointer to structure, use of pointer, malloc, calloc library functions.

Unions: union definition and declaration, accessing a union member, union of structure, initialization of a union member, uses of union, use of user-defined datatypes

Unit-III

Types of I/O, Console Input/Output functions: formatted console I/O functions, sprintf() and sscanf() functions, unformatted console I/O functions

Disk I/O functions: File opening modes, writing closing file(fclose), a file copy program, using argc, argv, string I/O in in files, formatted disk I/O functions, text versus binary mode, record I/O in files, detecting error in reading and writing, I/O redirection in DOS.

Unit-IV

Component of VDU: Display Adapters, Display screens (monitor), Video display modes, Resolution

Text or Graphics: Colors in text mode, Colors in graphic mode, Video pages, Writing to VDU memory in text mode

Unit-V

Graphic programming: Lines, Stylish lines, Drawing and filling images, Patterns with a differences, bar() Filling regular and non regular shapes, of palettes and colors, outputting text, Justifying text, A bit of animation, System metrics, CPU Registers , Mouse Programming

Books:

1. Programming with ANSI and Turbo C -kamthane- Pearson education
2. Programming in 'C'. E. Balaguruswami (TATA McGRAW Hill)
3. Programming and Problem solving through 'C'. (ELSEVIER)
4. First Course in Programming with 'C'. T. Jeyapowan (VIKAS)
5. The C Programming Language by Brian W Kernighan and Dennis M Ritchie
6. Practical C programming, 3rd Edition (A Nushel Handbook) O' Reilly

BSC - CS-2401
Introduction to Information System

Objective:

The objective of this course is to cover the structure of an organization, importance of information and the systems needed for effective capture, store, retrieve, process and analyze information.

Examination:

The External examination will be of 35 marks. The question paper will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (Numerical/objective/conceptual/ analytical/theoretical) combination of subsection in each question.

Unit-I

Information concepts, system & modeling concepts, what is information system, business information system, system development, need to learn information system, organization & information system, competitive advantage, performance based information system, careers in information systems.

Unit-II

H/W: Component, processing & memory devices, secondary storage, input and output devices

S/W: Overview of S/W, system & application S/W, programming languages, S/W issues & trends

Unit-III

Data management, data modeling and database models, database management systems, database applications

Unit-IV

Overview of Communication systems, telecommunication, network & distributed processing, telecommunication & application

Use & functioning of the Internet, Internet services, WWW, intranets & extranets, Net issues

Unit-V

Introduction to E-Commerce, types of e-commerce, e-commerce application, Electronics Payment System, technologically infrastructure of E-Commerce, trends to E-Commerce, strategy for successive E-Commerce

Computer Waste and Mistakes, computer crimes, privat..?, work environment

Books:

1. Principal of Information System: Ralph Stair (Thomson course technology)

B.Sc - CS-1501

OPERATING SYSTEM BASICS & PC PACKAGES

Objective:

The objective of this course is to make student learn the basic functions & structure of operating systems and various commands & operations.

Examination:

The External examination will be of 35 marks. The question paper will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (Numerical/objective/conceptual/ analytical/theoretical) combination of subsection in each question.

Unit - I

Evolution of an operating system, Define Operating system, objectives and functions of an operating system, the operating system as a resource manager, types of an operation system. Differentiate Dos, windows and linux/Unix.

Introduction to Windows-XP : Windows XP features, windows Desktop Setting, managing windows explorer.

UNIT -II

Windows-XP: Using Taskbar, Start Menu options, My Computer, Recycle Bin, My Network Place, My Documents.creating user Accounts in win-XP.

Windows Accessories: - Calculator, Note Pad, Word Pad, Paint, Entertainment, Address Book.

Unit - III

Control Panel: Installation of Software ,Addition of new hardware, installation of modem, Sound card, Printers and Scanner, Date and time, taskbar and start menu.

Windows Explorer: Creating a new folders and other explore facilities, changing the look and feel of windows(Desktop, Wallpaper, Screen saver etc.).

Unit - IV

Linux: Features, Structure of file system, Linux system architecture(Kernel and Shell).

Linux Command: - How to create and manage a text file in linux, cat, pwd, ls, mkdir, cd, , rm, rmdir, cp, who, mv, tty, sty, chmod.

Utilities: more, file, cmp, comm., diff, passwd, uname, cal, bc.

Filter and Pipe: pr, head, tail, grep, egrep, frep, tr.

Unit - V

MS-WORD: Define word processor ,types of word processor,creating document in MS word,formatting features of MS-word, word standard toolbar ,text formatting, header and footer, auto text,document security features,table handling features, insertion of files and pictures ,mail merge and macros.

Books:

1. Microsoft windows XP STEP BY STEP - PHI
2. operating system - William stallings - pearson education
3. Unix operating System - sumitabha das - Tata McGraw hill
4. Introduction to computers - Norton - McGraw Hill
5. Microsoft office : Ron Mansfield - BPB publication

IIIrd SEM.
CS-2204
DATA STRUCTURE - I

Total 48 lectures each of 45 minutes

Unit – 1

08 Lectures

Introduction to Data-structures : Definition of data structures and abstract data-types.

Classification of Data-structures : Linear, Non-linear, Homogeneous, Non-homogeneous, Static and Dynamic data structures.

Levels of Data-structures : User level(view-level), Logical level, Physical level.

Arrays : Definition, representation of One and Two dimensional arrays in memory (address calculation).

Sparse Matrix : Definition, Memory Representation

Unit – 2

10 Lectures

Stack : Definition, Array implementation of stack (static stack) : Operations PUSH, POP, TRAVERSE .

Applications of stack : Infix, Prefix , Postfix representation and evaluation using stack, Use of stack in recursive implementation.

Queue : Definition, Array implementation of queue (static queue) : Operations INSERT, DELETE, TRAVERSE.

Applications of queue : Network Printer, Simulation of an Airport, Time Sharing System(Round Robin Scheduling).

Comparisons of array, stack and queue data structures.

Introduction to Circular queue, Priority queue, Double ended queue, multiple queue.

Unit – 3

10 Lectures

Pointers : Introduction, Simple pointers, Pointer to pointer, Pointers to structures, malloc(), calloc() functions.

Linked list : Singly and Doubly Linear link lists, Singly and doubly circular linked list : Definitions, operations INSERT , DELETE, TRAVERSE on all these list.

Implementations of Stack and Queue using linked list (Dynamic stack and queue).

Unit – 4

10 Lectures

Applications of linked list :

String representation & string operations like string length, string reverse, string comparison, string concatenation, sting copying, convert upper-case to lower and vice-versa, substring using linked list.

Polynomial representation and addition of two polynomial using linked list, Josephus problem, searching using linked list, sorting using linked list.

Unit – 5

10 Lectures

Simple Searching Algorithms: Linear or sequential search, Binary search, Interpolation search using array.

Introduction to Complexity: Definition, Types of complexity: best-case, worst-case, average-case. Complexity of Linear search, Binary search, Interpolation Search, Bubble sort, Selection sort, Insertion sort.

Reference Books:

1. Data Structures (Schaume's Outlines) By Lipschutz TMH Publications.
2. Data Structures and Program Design in C Robert H. Kruse, Bruce P. Leung PHI Publications.

III SEM.
CS- 3605
WEB TECHNOLOGY AND PROGRAMMING

Total 48 lectures each of 45 minutes

Objective: To introduce the concept of Web Technology and internet.

Examination: The external examination will be of 35 marks. The question paper will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (Numerical/objective/conceptual/analytical/theoretical) combination of subsection n each question.

Unit-I

WORLD WIDE WEB (WWW) - History, Working, Web Browsers and their versions, Its functions, URLs, web sites, Portals. Concept of Search Engines, Search engines types, searching the Web and Web Servers, client and server techniques.

Concept of the point to point and Broadcast Network, Bus, Ethernet LAN, FDDI LAN, Token Ring, Star, Hub, MAN, WAN, Routers, Gateways, Bridge, Switches, Subnet, Internet and Intranet.

Unit-II

Internet basics: - Elements of the web, viewing web pages with a browser, using a browser for a mail, News and chat, security and privacy issues. Internet: advantage and disadvantage. Internet Services.

Concept of ISP (Internet Service Provider), Internet Backbones, NAPs, Concepts of URL Address, Domain Names, Hypertext Concepts, FTP, NNTP. The Email Electronic Post Services, SMTP, Configuring a Computer for an email, Free E-mail sites and setting e.g. hotmail, mail city, email with additional features.

Unit-III

Web server and proxy server, Web caches, FAQs, Web browser like Internet Explorer, Netscape Navigator, and Communication Suit, Internet Security issues, Embedded and Software based firewall, Data encryption and Digital Signature and Certificates.

Unit-IV

The art of creating the website and home page, The HTML programming basics, Syntax and rules, Tables, Frames, Forms, Example of HTML page, Choice of color, banners, Linking with HTML page, Div, Span, met tags, span, Introduction to DHTML, Javascript, Use of Javascript, Javascript Syntax, Datatype, Variable, Array, Operator and Expression, Assignment- To design a web site

Unit-V

The search and search engine for internet, Spiders, Robots, Bots, Internet Agents, Mobile agents, meta search sites, outlook express and front page. Web Hosting and publishing Concepts. Do's and Don'ts for creating a good website.

Reference Books:

1. Deitel & Deitel, Goldberg, "Internet and world wide web – How to Program", Pearson Education Asia, 2001.
2. Computer Networks – A.S. Tanenbaum

IIIrd SEM.
CS-3506
UNIX PROGRAMMING
(For Hons. Student only)
Total 48 lectures each of 45 minutes

UNIT – I

10 Lectures

Unix utilities –1 : Introduction to UNIX file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, cp, mv, ln, rm, unlink, mkdir, rmdir, du, df, mount, umount, find, unmask, ulimit, ps, who, w, finger, arp, ftp, telnet, rlogin.

UNIT – II

08 Lectures

Unix utilities –2:Text processing utilities and backup utilities , detailed commands to be covered are cat, tail, head , sort, nl, uniq, grep, egrep,fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, tar, cpio.

UNIT – III

10 Lectures

Working with shells : Shell basics, shell responsibilities, pipes and input Redirection, output redirection, here documents, the shell as a programming language, shell meta characters, shell variables, shell commands, the environment, control structures, shell script examples.

UNIT – IV

10 Lectures

Unix Internals: Unix file structure, directories, files and devices, System calls, usage of open, creat, read, write, close, lseek, stat, fstat,ioclt, umask, dup and dup2, the standard i/o (fopen, fopen, fclose,fflush, fseek, fgetc, getc, getchar, fputc, putc, putchar, fgets, gets), formatted I/O, stream errors, streams and file descriptors, file and directory maintenance (chmod, chown, unlink, link, symlink, mkdir, rmdir, chdir, getcwd).

UNIT – V

10 Lectures

Process and Signals: Overview of Process, process structure, starting new process, Waiting for a process, zombie process, process control, process identifiers, fork, Vfork, exit, wait, exec, Signal functions, unreliable signals, interrupted system Calls, kill and raise functions, alarm, pause functions, abort, system, sleep functions.

TEXT BOOKS :

1. Unix the ultimate guide, Sumitabha Das, TMH.

REFERENCES:

1. Advanced programming in the Unix environment, W.R.Stevens, Pearson education.
2. Unix system programming using C++, T.Chan, PHI.
3. Unix programming environment, Kernighan and Pike, PHI. / Pearson Education
4. Unix Internals The New Frontiers, U.Vahalia, Pearson Education.
5. Unix for programmers and users, 3rd edition, Graham Glass, King Ables, Pearson Education.

IVth SEM.
CS-4209
DATA STRUCTURE - II

Total 48 lectures each of 45 minutes

Unit – 1

10 lectures

Introduction to Functions : Simple functions, Recursive functions, Types of recursion, Uses of recursion, methods to avoid recursion.

Trees : Definition, Binary tree : definition, representation, operations : insertion, deletion, and traversal : preorder, inorder, postorder, Binary search tree (BST) : definition and creation, search using BST.

Advance Trees: Height Balance Tree (AVL), Definition of Multi-way Search Tree, B-Tree, B+ tree.

Unit – 2

10 lectures

Graph : Definition, types of graph – Directed, Non-directed, weighted, connected , strongly connected, weakly connected , non-connected, cyclic, acyclic.

Graph Representations: Definition, adjacency matrix and adjacency list representation of directed graph and non-directed graph, Linked list Representation.

Graph traversal: Depth First Search (DFS), Breadth First Search (BFS) algorithm.

Unit – 3

10 lectures

Hashing : Definition of Hashing, Hash functions, Collision.

Collision resolution and overflow handling techniques: Open Addressing – linear probing, quadratic probing and Rehashing, Chaining.

Unit – 4

10 lectures

Simple Sorting Algorithms: Bubble sort, Selection sort, Insertion Sort on array.

Advance Sorting :

Quick Sort, Heap sort: Creation of Heap (MAX heap, MIN heap), Sorting using heap. Shell Sort and Merge Sort :

Unit – 5

08 lectures

Analysis & Complexity of Algorithms:

Time and Space Complexity, Computational Complexity, Asymptotic Complexity, Amortized Complexity, Big-O notation., Linear time Constant, Quadratic, Cubic, Logarithmic time constant etc.

Complexity of searching and sorting algorithms.

Reference Books:

1. Data Structures and Algorithm in C++ By Adam Drozdek Thomson (Vikas)
2. Data Structures (Schaume's Outlines) By Lipschutz TMH Publications.

IVth SEM.
CS-2402
DBMS FUNDAMENTALS

Total 48 lectures each of 45 minutes

Unit – 1

10 lectures

Fundamentals of DBMS: Data, Information, Database & Computers, DBMS Definition, DBMS versus file processing system, Components of DBMS Environment, Instances & Schemas, Three Levels Architecture, Data Independence, Data Dictionary, Database Users, Data Administrators.

Unit – 2

08 lectures

Modeling the Real World, Various Data Models & their Comparison, Entity Relationship Models. RDBMS –Concept, Components, Data Integrity, Keys, Relational data Manipulations and Relational Algebra, Tuple Calculus.

Unit – 3

10 lectures

Normalization: Definition, Decomposition, Basic Concepts like FD, Objectives of Normalization. Normal Forms- First, Second, Third Normal Form, BCNF, Concept of Multi Valued Dependencies & Higher Normal Forms.

Unit – 4

10 lectures

Introduction to SQL, DDL, DML, and DCL statements, Creating Tables, Adding Constraints, Altering Tables, Update, Insert, Delete & various Form of SELECT- Simple, Using Special Operators for Data Access. Nested Queries & Exposure to Joins, Aggregate Functions.

Unit – 5

10 lectures

Transaction: Concept of Transaction, Concurrency Control-Problem & its Basis, Concurrency Control -Locks & Deadlocks. Recovery-Kind of Failures, Recovery Techniques, Security-Authentication, Authorization, Access Control.

References:

1. H. F. Korth & A. Silverschatz, Database Concepts, Tata McGraw Hill, New Delhi
2. Elmasri & Navathe, Fundamentals of Database systems, Addison & Weisely, New Delhi.
3. C. J. Date, Database Systems, Prentice Hall of India, New Delhi.

IVth SEM.
CS-2001
LAN AND WINDOWS 2000
ADMINISTRATION
(For IT Student only)
Total 48 lectures each of 45 minutes

Unit – 1

08 lectures

LAN Communication Concepts, Types of communication- Analog & Digital, LAN Topologies & Transmission Media, Bus/Tree, Rings, Stars , Structured Cabling Systems, Channel allocation.

Unit – 2

10 lectures

Client Server Information Systems, LAN Internetworking , Modems, Bridges, Switches, Hubs, Source Routing, Wireless Networks & LAN Remote Access, LAN Operating Systems, communication protocols.

Unit – 3

10 lectures

Token Ring Based LANs, Traditional LANs, Ethernet, IEEE802.3, Internet Client/Server Structure, 100 Mbps Ethernet LANs, 100BASE-T, Switched Ethernet, 100VG-AnyLAN, 1000 Mbps Gigabit Ethernet.

Unit – 4

10 lectures

Feature of windows 2000, Install or upgrade to Windows 2000, Configure the Windows 2000 environment, Connect clients running Windows 2000 to networks, Connect clients running Windows 2000 to networks, Create and manage user accounts, Manage access to resources by using groups.

Unit – 5

10 lectures

Manage access to resources by user groups, Manage data by using the NTFS file system, Provide network access to file resources, Monitor and optimize performance in Windows 2000, Implement security in Windows 2000, Configure printing.

References:

1. A First Course in Computers - Sanjay Saxena - Vikas Publishing House Pvt. Ltd. (For win-2000 unit 4 & 5)
2. Implementing a Microsoft Windows 2000 Network Infrastructure – Tech media
3. Local and Metropolitan Area Networks, 6/E --William Stallings ---Pearson

IVth SEM.
CS-3507
SYSTEM PROGRAMMING
(For Hons. Student only)

Total 48 lectures each of 45 minutes

Unit – 1

10 lectures

Language Processors – Language processing activities, Fundamental of language processing, fundamental of language specification, language processors development tools. Data Structure for language processing .

Unit – 2

08 lectures

Scanning and parsing , single pass and two pass Assemblers.

Unit – 3

10 lectures

Macros and Macro Processors, Compilers and Interpreters – Aspects of compilation (Analysis & Synthesis phase), memory allocation, compilation of expressions, compilation of control structures and code optimization.

Unit – 4

10 lectures

Linkers – Relocating and linking concepts, Design of a linker, Self relocating programs, a linker for MS-DOS, linking for overlays and Loaders.

Unit – 5

10 lectures

Introduction to 8085/ 8086 assembly language programming. Design of Macro Assembler.

References:

1. D.M. DHAMDHERE- SYSTEMS PROGRAMMING AND O.S. - Tata McGraw Hill, New Delhi
2. J.J. DONAVAN – SYSTEM PROGRAMMING - Tata McGraw Hill, New Delhi