SCHEME FOR MASTER OF SCIENCE (COMPUTER SCIENCE)
M.SC. (COMPUTER SCIENCE)

1st Semester

Course No.	Subject	Marks
MSC 101	INFORMATION AND COMMUNICATION TECHNOLOGY	100
MCS 102	PROGRAMMING WITH C	100
MSC 103	OPERATING SYSTEMS	100
MSC 104	PC PACKAGES	100
MSC 105	COMMUNICATIVE ENGLISH	100
MSC 106	INTERNAL AND CONTINUOUS EVALUATION	100
MSC 107	COMPUTER LAB–I (C PROGRAMMING)	100
MSC 108	COMPUTER LAB –II (WORD,EXCEL, POWERPOINT, DOS, WINDOWS)	100
TOTAL		800

2nd Semester

Course No.	Subject	Marks
MSC 201	DATA STRUCTURES AND ALGORITHMS USING C	100
MCS 202	SOFTWARE ENGINEERING	100
MSC 203	PROGRAMMING WITH VISUAL BASIC.NET	100
MSC 204	OBJECT ORIENTED PROGRAMMING WITH C++	100
MSC 205	PRINCIPLES OF MANAGEMENT	100
MSC 206	INTERNAL AND CONTINUOUS EVALUATION	100
MSC 207	COMPUTER LAB I (C++ and DS)	100
MSC 208	COMPUTER LAB II(VB.NET)	100
MSC 209	MINOR PROJECT	100
TOTAL		900

3rd Semester

Course No.	Subject	Marks
MSC 301	COMPUTER NETWORKS	100
MSC 302	PROGRAMMING WITH ASP.NET	100
MSC 303	COMPUTER ARCHITECTURE	100
MSC 304	DATABASE MANAGEMENT SYSTEM	100
MSC305	ELECTIVE I ((CHOOSE ANY ONE)) ➢ ARTIFICIAL INTELLIGENCE ➢ COMPILER DESIGN ➢ DISCRETE MATHEMATICS	100
MSC 306	INTERNAL AND CONTINUOUS EVALUATION	100
MSC 307	COMPUTER LAB I(ASP.NET	100
MSC 308	COMPUTER LAB – II (ORACLE and WINDOWS SERVER)	100
TOTAL		800

4TH Semester

Course No.	Subject	Marks
MSC 401	PROGRAMMING WITH JAVA	100
MSC 402	LINUX AND SERVER ADMINISTRATION	100
SC 403	ELECTIVE-II (CHOOSE ANY ONE) ➢ DATA WAREHOUSING AND MINING ➢ COMPUTER GRAPHICS ➢ NUMERICAL ANALYSIS	100
MSC 404	INTERNAL AND CONTINUOUS EVALUATION	100
MSC 405	COMPUTER LAB I(JAVA)	100
MSC 406	COMPUTER LAB III (LINUX)	100
MSC 407	MAJOR PROJECT	200
TOTAL		800

MSC101 - INFORMATION AND COMMUNICATION TECHNOLOGY

UNIT – I

Brief history of development of computers, Computer system concepts, Computer system characteristics, Capabilities and

limitations, Types of computers Generations of computers, Personal Computer (PCs) – evolution of PCs, configurations of PCs- Pentium and Newer, PCs specifications and main characteristics. Basic components of a computer system - Control unit, ALU, Input/Output functions and characteristics, memory - RAM, ROM, EPROM, PROM and other types of memory.

UNIT – II

Input/Output & Storage Units-:Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light pen, Touch Screen, Monitors - characteristics and types of monitor -Digital, Analog, Size, Resolution, Refresh Rate, Interlaced / Non Interlaced, Dot Pitch, Video Standard - VGA, SVGA, XGA etc, Printers& types – Daisy wheel, Dot Matrix, Inkjet, Laser, Line Printer, Plotter, Sound Card

and Speakers, Storage fundamentals - Primary Vs Secondary Data Storage and Retrieval methods - Sequential, Direct and Index Sequential, SIMM, Various Storage Devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Hard Disk Drives, Floppy Disks (Winchester Disk), Optical Disks, CD, VCD, CD-R, CD-RW, Zip Drive, flash drives Video Disk , Blue Ray Disc, SD/MMC Memory cards, Physical structure of floppy & hard disk, drive naming conventions in PC. DVD, DVD-RW.

UNIT – III

Software and its Need, Types of Software - System software, Application software, System Software - Operating System, Utility Program, Programming languages, Assemblers, Compilers and Interpreter, Introduction to operating system for PCs-DOS Windows, Linux, File Allocation Table (FAT & FAT 32), files & directory structure and its naming rules, booting process details of DOS and Windows, DOS system files Programming languages- Machine, Assembly, High Level, 4GL, their merits and demerits, Application Software and its types - Word-processing, Spreadsheet, Presentation Graphics, Data Base Management Software, characteristics, Uses and examples and area of applications of each of them, Virus working principles, Types of viruses, virus detection and prevention, viruses

on network.

UNIT – IV

Use of communication and IT , Communication Process, Communication types- Simplex, Half Duplex, Full Duplex,

Communication Protocols, Communication Channels - Twisted, Coaxial, Fiber Optic, Serial and Parallel Communication, Modem - Working and characteristics, Types of network Connections - Dialup, Leased Lines, ISDN, DSL, RF, Broad band ,Types of Network - LAN, WAN, MAN ,Internet, VPN etc., Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies, Components of LAN -Media, NIC, NOS, Bridges, HUB, Routers, Repeater and Gateways. Internet-Evolution, World Wide Web Internet Services, Convergence of technologies.

UNIT-V

Management information system - Introduction, Characteristics, Needs, Different views of MIS, Designing, Placement of MIS, Pitfalls in Designing an MIS, Computer based MIS – Advantages & Disadvantages. Computer Applications in Business-Need and Scope, Computer Applications in Project Management, Computer in Personnel

Administration, Information System for Accounting-Cost and Budgetary Control, Marketing and Manufacturing, Computer
Applications in Materials Management, Insurance and Stock-broking, Production planning and Control, Purchasing, Banking, Credit and Collection, Warehousing. Use of computers in common public services and e-governance.

TEXT & REFERENCE BOOKS :

☐ *Anurag Seetha, "Introduction to Computers and Information Technology", Ram Prasad & Sons, Bhopal.*

☐ *S.K.Basandra, "Computers Today ", Galgotia Publications.*

☐ *Alexis Leon & Mathews Leon, " Fundamentals of Information technology ", Vikas Publishing House, New Delhi.*

☐ *Rajeev Mathur, " DOS Quick reference ", Galgotia Publications*

MSC102 - PROGRAMMING WITH 'C'

UNIT–I

Overview of C, features of C, IDE of C, Structure of C program, Compilation & execution of C program., Identifiers, Variables, Expression, Keywords, Data types, Constants, Scope and Life of Variables - Local and Global Variable.
Operators: Arithmetic, Logical, Relational, Conditional and Bitwise operators, Precedence and associatively of operators, Types conversion in expression Basic input/output and library functions Single Character Input/Output i.e. getch(), getchar(), getche(), putchar(), Formatted input/output i.e. printf() and scanf(), Library Functions – concepts mathematical and character functions. Control structures- If Statement, If…….Else Statement, Nesting Of If ………Else Statement, Else If Ladder, ? : Operator, Switch Statement, Compound Statement, Loop Controls – For, While, Do-While Loops, Break Continue, Exit, Goto Statement .

UNIT–II

The Need of a Function, User Defined and Library Function, Prototype of a Function, Calling of a function, Function Argument, Passing arguments to function, Return Values, Nesting of Function, main(),Command Line Argument, Recursion. Storage Class specifier – Auto, Extern, Static, Register.

UNIT–III

Arrays-Single And Multidimensional Arrays, Array Declaration And Initialization Of Arrays, Array as function arguments. String : Declaration, Initialization, String Functions Structure and Union-Defining Structure, Declaration Of Structure Variable, Accessing Structure Members, Nested Structures, Array Of Structures, Structure Assignment , Structure As Function Argument, Function That Return Structure, Union

UNIT-IV

Pointers- The & and * Operators, Pointers expressions, Pointers V/s Arrays, Pointer to functions, Function returning pointers. Static and dynamic memory allocation in C, DMA functions: Malloc(), Calloc(), Sizeof(), Free(), Relloc().
Bitwise operator, Preprocessor Directive.

UNIT–V

File management-Defining, Opening a File & Closing a File, Text file, Binary file, Functions for File Handling: fopen, fclose, gets, puts, fprint, fscanf, getw, putw, fputs, fgets,fread, fwrite, Random access to files : fseek, ftell, rewind, file name as Command Line Argument. Graphics on your PC, Initialize Graphics Mode, Functions used In Graphics - Drawing a Point on The Screen, Drawing – lines, rectangle, ovals, circles, arcs, polygon, filling colors, Using Text in Graphics Display.

TEXTS & REFERENCE BOOKS:
PROGRAMMING IN C BY E. BALAGURUSWAMI, TMH PUBLICATIONS
PROGRAMMING WITH C BY GOTTFRIED, SCHAUMS OUTLIE SERIES, TMH PUBLICATIONS
THINKING IN C BY MAHAPATRA, PHI PUBLICATIONS

MSC103 - OPERATING SYSTEMS

UNIT– I
Definitions, Components and types of Operating system, Operating System Services, System Calls, System Programs, System Structure, System Design and Implementation, System Generations. I/O subsystem Overview, I/O hardware, Application I/O interface, Kernel I/O Subsystem. Linux User and programmer Interface

UNIT–II
Process Concepts, Process State & Process Control Block, Process Scheduling, Scheduling, Criteria, Scheduling Algorithms, Multiple- Processor Scheduling Real-Time Scheduling, Threads Introduction, Multithreading models, Example System- process management in Linux

UNIT–III
The Critical Sections Problem, Semaphores, Classical Problem of Synchronization, Example system- Interprocess communication in Linux Deadlock Characterizations, Method for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Combined Approach to Deadlock.

UNIT–IV
Storage management Logical Versus Physical Address Space, Swapping, Contiguous Allocating, Paging, Segmentation,
Segmentation With Paging, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement, Page
Replacement Algorithms, Allocation of Frames, Thrashing, Demand Segmentation. Example System Memory management in Linux

UNIT–V
Disk Scheduling, Disk Management, Swap Space Management, Disk Reliability, Stable Storage Implementation. File Concepts,Directory Structure,Protectin File system in Linux

TEXT & REFERENCE BOOKS :
1.OPERATING SYSTEM CONCEPTS By SILBERSCHATZ & GALVIN, ADDISON WESLEY PUBLICATION 6th Edition.
2.OPERATING SYSTEM CONCEPTS & DESIGN By MILAN MILEN KOVIC, TMH PUBLICATION
3.OPERATING SYSTEMS By WILLIAM STALLINGS

MSC104 PC PACKAGES

UNIT – I
MS Windows: Introduction to M.S. Windows; Features of Windows; Various versions of Windows & its use; Working with Windows; My Computer & Recycle bin ; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy,delet,moveing of files and folders from one drive to another, Shortcuts & Autostarts; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hardware & Software program on your computer.

UNIT – II

Office Packages-Office activates and their software requirements, Word-processing, Spreadsheet, Presentation graphics, Database, introduction and comparison of various office suites like MSOffice, LotusOffice, StarOffice, OpenOffice etc**.**

MS Word Basics: Introduction to MS Office; Introduction to MSWord; Features & area of use. Working with MS Word.; Menus & Commands; Toolbars & Buttons; Shortcut Menus, Wizards & Templates; Creating a New Document; Different Page Views and layouts; Applying various Text Enhancements; Working with – Styles, Text Attributes; Paragraph and Page Formatting; Text Editing using various features ; Bullets, Numbering, Auto formatting, Printing & various print options

UNIT-III

Advanced Features of MS-Word: Spell Check, Thesaurus, Find & Replace; Headers & Footers ; Inserting – Page Numbers, Pictures, Files, Autotexts, Symbols etc.; Working with Columns, Tabs & Indents; Creation & Working with Tables including conversion to and from text; Margins & Space management in Document; Adding References and Graphics; Mail Merge, Envelops & Mailing Labels. Importing and exporting to and from various formats.

UNIT – IV

MS Excel: Introduction and area of use; Working with MS Excel.; concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

UNIT – V

MS PowerPoint: Introduction & area of use; Working with MS PowerPoint; Creating a New Presentation; Working with Presentation; Using Wizards; Slides & its different views; Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists; Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects; Designing & Presentation of a Slide Show; Printing Presentations, Notes, Handouts with print options.

Outlook Express: Features and uses, Configuring and using Outlook Express for accessing e-mails in office.

Text & Reference Books:

 Windows XP Complete Reference. BPB Publications

 *Joe Habraken**, Microsoft Office 2000, 8 in 1 by,** Prentice Hall of India*

 I.T. Tools and Applications *by A. Mansoor, Pragya Publications, Matura*

MSC105 - COMMUNICATIVE ENGLISH

Objective : This course is designed on a predominantly communicative or interactive approach to the learning of English.

This approach is based on the belief that language is not a body of knowledge to be learnt but a skill to be acquired. Student acquires the ability to use the language fluently effectively, correctly, confidently and naturally in real life situations that is to say, they imbibe and internalize the language. However, the approach is to encourage the learners to formulate and express their ideas and offer ample scope for creativity. The approach has been aimed at an integrator development of the four basic skills - Listening, speaking, reading and writing.

FUNCTIONAL GRAMMAR
UNIT–I
 Sentences : Simple, Compound, Complex, Assertive, Interrogative, Imperative, Exclamatory.
 Parts of Speech
 Adverb and Adjective
 Articles : Usage of 'A', 'AN', 'THE'
 Preposition : Position of Prepositions, Place Relations Time Relations and other relations.
 Common Errors
UNIT–II
Functional Grammar :
 Tenses : Simple Present, Progressive Perfect, Present Perfect Progressive along-with Past Tense and indications of futurity
 Reported speech
 Modals : Will, Shall Should, Would and others
 Voice : Active and Passive
UNIT III
 Introduction – Ourselves and others
 Paragraph writing
 Prece Writing,
 Job Applications, Curriculum Vitae
 Comprehension Written
UNIT-IV
Vocabulary :
 Words Commonly Misspelt
 Word formation by prefix suffix
 Synonyms and antonyms
UNIT-V
Literature : Lessons and Poems from M.P. Universities' 1st year Foundation Course book and Written Communication by Sarah Freeman

TEXT BOOKS:
 "English Language and Indian Culture" - M.P.Universities' 1st year Foundation Course published by M.P.Hindi Granth Academy, Bhopal [Complete]
 "Written Communication in English" by Sarah Freeman published by Orient Longman [Units I and II only]
REFERENCE BOOKS:
 A Practical English Grammar by Thomson and Martinet
 English Grammar by W.S.Allen
MSC201 -DATA STRUCTURES AND ALGORITHMS USING C
UNIT-I
Introduction to data structures, Abstract data types Stacks - Introduction to stack & primitive operation on stack, Stack
as an abstract data type, Stack's applications - Infix, post fix & Prefix expressions, Recursion, Multiple stacks Queues -Introduction to queues, Primitive Operations on the Queues, Queue as an abstract data type, Circular queue, Dequeue, Priority queue.
UNIT-II

Linked List - Introduction to the Linked List, Memory representation of linked list, Operation on Linked List, Linked List representation of stack and Queue, Header nodes. Types of Linked List – Doubly Linked List, Circular Linked List, Application of Linked List.

UNIT-III

Trees -Basic Terminology of Trees, Binary Trees, Tree Representations as Array & Linked List. Binary tree representation, Traversal of binary trees - In order, Preorder & post order, Application of Binary tree, Threaded binary
Tree Balanced tree, AVL tree, B-tree, B+ & B* trees, Conversion of General Tree to Binary Tree.

UNIT-IV

Analysis of algorithm, Complexity with big'O' notation. Searching - Sequential Searching, Binary search and their Comparison Sorting - External & Internal sorting, Insertion sort, Selection sort, Quick sort, Bubble sort, Heap sort, Merge sort, Comparison of sorting methods Algorithms of sorting and searching in Linked list and Arrays. Tables - Hash table, Collision resolution Techniques.

UNIT–V

Graphs - Introduction to graphs, Basic Terminology, Directed, Undirected & Weighted graph, Representation of graphs, Warshall's algorithem for path matrix and shortest path, Graph Traversals- Depth first & Breadth first search. Spanning Trees, minimum spanning Tree, The basic Greedy Strategy for computing Algorithm of Kruskal, and Prim Applications of Graphs : Shortest path and Longest Path Problems.

TEXTS & REFERENCE BOOKS:
FUNDAMENTALS OF DATA STRUCTURE *BY* S. SAWHNEY & E. HOROWITCH
DATA STRUCTURE *BY* TREMBLAY & SORRENSON
DATA STRUCTURE SCHAUM'S OUTLINE SERIES, MCGRAW HILL PUBLICATION

MSC202–SOFTWARE ENGINEERING

UNIT - I

SOFTWARE **:** Software Characteristics, Components & Applications, Software Engineering - A Layered Technology, Software Process Models - Linear Sequential Model, Prototype & Rad Model., Evolutionary Software Process Model – Incremental Model and Spiral Model.
SOFTWARE PROJECT MANAGEMENT **:** Project Management Concepts – People Problem and Process S/W PROCESs and Project Metrics : Metrics in The Process and Project Domains . Software Measurement –Size Oriented, Function Oriented Metrics, Extended Function

UNIT - II

SOFTWARE PROJECT PLANNING: Objectives, Scope, Project Estimation, Decomposition Techniques, Empirical Estimation Models. ANALYSIS CONCEPT AND PRINCIPLES : Requirement Analysis, Communication Techniques, Analysis Principles, Software Prototyping, Specifications. ANALYSIS MODELING: Elements of The Analysis Modeling, Data Modeling . Functional Modeling and Information Flow, Behavioral Modeling, Data Dictionary.

UNIT – III

DESIGN CONCEPTS AND PRINCIPLES: Design Process, Design Concepts, Design Principles, Effective Modular Design. DESIGN METHODS : Architectural Design Process, Transform Mapping and Transaction Mapping,Interface Design, - Internal and External Design, Human omputer Interface Design, Interface Design Guidelines, Procedural Design.

UNIT - IV

S/W Quality Assurance : Quality Concepts, Matrix for Software Quality, Quality Movement, S/W Q A, S/W Review, Formal Technical Reviews, Formal Approaches to Sqa, S/W Reliability, ISO 9000quality Standards S/W TESTING MODELS : S/W Testing Fundamentals, Test Case Design, White and Black Box Testing, Basic Path Testing, Control Structure S/W TESTING STRATEGIES : Strategic Approach To S/W Testing, Unit Testing, Integration Testing, Validation Testing, System Testing, Debugging

UNIT - V

S/W REUSE : Reuse Process,Building Reuse Components, Classified And Retrieving Components, Economics Of S/W Reuse COMPUTER AIDED S/W ENGINEERING: Introducing of Case, Building Block For Case, Taxonomy Of Case Tools, Integrating Case Environment, Integrating Architecture, Case Repository

TEXTS & REFERENCE BOOKS :

☐ *Software Engineering By R.S.Pressman*
☐ *An Integrated Approach To Software Engineering By Pankaj Jalote*

MSC203–Programming with Visual Basic.NET

UNIT–I

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser. The environment: Editor tab, format tab, general tab, docking tab. visual development & event drive Programming -Methods and events.

UNIT–II

The VB.NET Language- Variables -Declaring variables, Data Type of variables, Forcing variables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Collections, Subroutines, Functions, Passing variable Number of Argument Optional Argument, Returning value from function. Control flow statements: conditional statement, loop statement. Msgbox & Inputbox.

UNIT – III

Working with Forms : Loading, showing and hiding forms, controlling One form within another. GUI Programming with Windows Form: Textbox, Label, Button,Listbox, Combobox, Checkbox, PictureBox, RadioButton, Panel, scroll bar, Timer, ListView, TreeView, toolbar, StatusBar.There Properties, Methods and events. OpenFileDilog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog. Link Label. Designing menues : ContextMenu, access & shorcut keys.

UNIT–IV

Object oriented Programming: Classes & objects, fields Properties, Methods & Events, constructor, inheritance. Access Specifiers: Public Private, Projected. Overloading, My Base & My class keywords. Overview of OLE, Accessing the WIN32 API from VB.NET & Interfacing with office97, COM technology, advantages of COM+, COM & .NET, Create User control, register User Control, access com components in .net application.

UNIT–V

Database programming with ADO.NET – Overview of ADO, from ADO to ADO.NET, Accessing Data using Server Explorer. Creating Connection, Command, Data Adapter and Data Set with OLEDB and SQLDB. Display Data on data bound controls, display data on data grid. Generate Reports Using CrystalReportViwer.

TEXT & REFERENCE BOOKS :

☐ **VB.NET Programming Black Book** *by steven holzner –dreamtech publications*
☐ **Mastering VB.NET** *by Evangelos petroutsos- BPB publications*

☐ *Introduction to .NET framework*-*Worx publication*
☐ *msdn.microsoft.com/net/*
☐ *www.gotdotnet.com*

MSC204 - OBJECT ORIENTED PROGRAMMING WITH C++
UNIT–I
Overview of C++ : Object oriented programming, Concepts, Advantages, Usage. C++ Environment: Program development environment, the language and the C++ language standards. Introduction to various C++ compilers, C++ standard libraries, Prototype of main() function, Data types. C++ as a superset of C, New style comments, main function in C++, meaning of empty argument list, function prototyping, default arguments and argument matching. User defined data types: enumerated types, use of tag names, anonymous unions, scope of tag names Classes & Objects : Classes, Structure & Classes, Union & Classes, Inline Function, Scope Resolution operator, Static Class Members: Static Data Member, Static Member Function, Passing Objects to Function, Returning Objects, Object Assignment. Friend Function, Friend Classes.

UNIT–II
Array, Pointers References & The Dynamic Allocation Operators: Array of Objects, Pointers to Object, Type Checking C++ Pointers, The This Pointer, Pointer to Derived Types, Pointer to Class Members, References: Reference Parameter, call by reference and return by reference Passing References to Objects, Returning Reference, Independent Reference, C++'S Dynamic Allocation Operators, Initializing Allocated Memory, Allocating Array, Allocating Objects. Constructor & Destructor : Introduction, Constructor, access specifiers for constructors, and instantiation, Parameterized Constructor, Multiple Constructor in A Class, Constructor with Default Argument, Copy Constructor, Destructor.

UNIT–III
Overloading as polymorphism: Function & Operator Overloading : Function Overloading, Overloading Constructor Function Finding the Address of an Overloaded Function, Operator Overloading: Creating A Member Operator Function, Creating Prefix & Postfix Forms of the Increment & Decrement Operation, Overloading The Shorthand Operation (I.E. +=,-= Etc), Operator Overloading Restrictions, Operator Overloading Using Friend Function, Overloading New & Delete, Overloading Some Special Operators, Overloading [ ], ( ), -, Comma Operator, Overloading << And . Namespaces: global namespace and namespace std, nested namespaces

UNIT–IV
Inheritance : Base Class Access Control, Inheritance & Protected Members, Protected Base Class Inheritance, Inheriting Multiple Base Classes, Constructors, Destructors & Inheritance, When Constructor & Destructor Function are Executed, Passing Parameters to Base Class Constructors, Granting Access, Virtual Base Classes . Virtual Functions & Polymorphism : Virtual Function, Pure Virtual Functions, Early Vs. Late Binding.

UNIT–V
Templates and Exception Handling: Exception handling in C++, try, throw, catch sequence, multiple catch blocks, uncaught exceptions, catch-all exception handler Templates: Reason for templates compactness and flexibility, function template examples explicit specialization, class templates, out of class definition of member functions The C++ I/O System Basics : C++ Streams, The Basic Stream Classes, C++ Predefined Streams, Formatted I/O: Formatting Using the Ios Members, Setting The Formal Flags, Clearing Format Flags, An Overloaded Form Of Setf ( ), Using Width()

Precision() and Fill(), Using Manipulators to Format I/O, Creating Your own Manipulators.

TEXT & REFERENCE BOOKS:

Herbert Schildt**, "C++ The complete reference "** - TMH Publication ISBN 0-07 463880-7

E. Balguruswamy, **"C++ "**, TMH Publication ISBN 0-07-462038-x

MSC205–PRINCIPLES OF MANAGEMENT

UNIT–I

Management basics – What is management, the history of management, types of manager, manager qualities. Management

responsibilities, management tasks and functions. The business environment – defining the organization, organization structure, the quality organization, organizational changes, Centralisation and Decentralisation, managing changes. Management obligations, social and professional responsibilities, government regulations.

UNIT–II

Strategy formulation – the elements of strategy, the strategy formulation process, alliances and acquisitions, strategy formulation tools and techniques, plan implementation. Decision making – the nature of management decision, the decision making process, decision making techniques. Information presentation and reporting - Principle, Type of Reports, Presentation on Modes, Function reporting system, Information and its uses, Characteristics of information, flow of information.

UNIT–III

Management information system (MIS) and its uses, Computer based MIS – Advantages & Disadvantages. Brief introduction to project planning and management and its tools/techniques-Gantt chart, PERT/CPM. Human Resources management: Concepts & functions, Job analysis and role description.

UNIT–IV

Management skills, Leadership and motivation – The nature of leadership, leadership theories, delegation, motivation and motivation theories, need of motivation, motivation techniques. Team building – Defining and effective team, selecting team members, building teams, training and development. Effective communication – The communication process, presentation skills. Tools and techniques.

UNIT–V

Time management – The importance of time, characteristics of management tasks, determining time elements, time management techniques. Entrepreneurship – Entrepreneur and its role, how to become an entrepreneur, essentials steps to become an entrepreneur, EDP training.

TEXT & REFERENCE BOOKS :

 *S.K.Basandra, **"Computers Today",** Galgotia Publications*

 *Koontz H, **"Essentials Of Management",** TMH Publications*

MSC301 - COMPUTER NETWORKS

UNIT-I

Networking - Needs and Advantages, Network, Types- Client, Server and Peers, introduction to various types of servers.

Transmission technology - Signal Transmission-Digital signaling, Analog Signaling, Asynchronous & synchronous Transmission, Wired & Wireless transmission, Base band and Broadband transmission, Transmission Media types- properties & specialty of various media – types, comparative study. Network Topology-Bus, Star, Ring, Star bus, Star ring, Mesh – Features, Advantages and disadvantages of each type.

UNIT–II
Network adapters – working principals, configuration and selection, Network Protocols-Hardware Protocols, software Protocols. The theoretical Network Model – OSI IEEE 802 standards, 802.3, 802.4, 802.5 Real World Networks – Ethernet, Fast Ethernet, Token Rings, FDDI, ATM, ARCnet and AppleTalk.

UNIT–III
Network Scaling-No. of nodes, distance, software, speed, special requirements Connectivity Devices: Modem, Repeater, Hub – Active, Passive and Intelligent, Bridge-Local, Remote, Wireless, Routers-Static and Dynamic, Switches and its types . Brouters and Gateways. Overview of TCP/IP reference model. TCP/IP Protocol suites – Comparision between OSI and TCP/IP Models, Classification of TCP/IP protocols- IP, TCP, UDP, ARP, ICMP. TCP/IP Services Protocols- DHCP, DNS, WINS, FTP, SMTP, TELNET, NFS. IP Addressing and Subnet- IP Address – Class A, B & C. Domain Name Addressing, URL, e-mail address, Subnet & subnet mask.

UNIT–IV
Network building blocks requires for setting up a small LAN using Windows in a office, Hardware & software required, Simple Installation and configuration of Networking under Windows. Using HyperTerminal in Windows, overview and using Network Setup Wizard in Windows, Some basic networking configuration using Windows 95/98/XP/2000/2003 Server and clients, Simple network administration. Setting up Internet Connection Sharing in Windows.

UNIT- V
Network Security : Network security issues, common threats, security barriers in the network pathways, Official levels of computer security, types of security controls, approaches to network security, Ethical hacking. Firewalls – Need and features of firewalls, types of firewall technologynetwork level and application level, IP packets filter screening routers, limitations of firewalls. Encryption and Decryption – Cryptography, Type of encryptions, encryption keys, single/ secrete/ private key encryption, Public/Private key encryption. Overview of Digital Signature and Digital Certificates technology,

TEXT & REFERENCE BOOKS:

 Ames Chellis Charles Perkins, Matthew Strebe **"Networking Essentials:Study Guide MCSE"**, *Second Edition, BPB Publications.*

 S.K.Basandra & S. Jaiswal, **"Local Area Networks",** *Galgotia Publications*

 MCSE Windows 2000 Network Infrastructure Disign

 Andrew & Tanenbaum, **"Computer Network "**

 *Prakash C Gupta***, "Data Communication**

MSC302 - PROGRAMMING WITH ASP.NET

UNIT I
HTML - Concepts of Hypertext, Versions of HTML, Elements of HTML syntax, Head & Body Sections, Building HTML documents, Inserting texts, Images, Hyperlinks, Backgrounds and Colour controls, Different HTML tags, Table layout and presentation, Use of front size & Attributes. List types and its tags, Use of Frames and Forms in web pages, ASP
& HTML Forms.

UNIT II Overview of Dynamic Web page, introduction & features of ASP.NET, Understanding ASP.NET Controls, Applications, Web servers, installation of IIS. Web forms, web form controls -server controls, client controls. Adding controls to a web form, Buttons, Text Box , Labels, Checkbox, Radio Buttons, List Box. Adding controls at runtime. Running a web Application, creating a multiform web project. Form

Validation: Client side validation, server Side validation, Validation Controls : Required Field Comparison Range. Calendar control, Ad rotator Control, Internet Explorer Control.

UNIT III

Overview of ADO.NET, from ADO to ADO.NET. ADO.NET architecture, Accessing Data using Data Adapters and Datasets , using Command & Data Reader, binding data to data bind Controls, displaying data in data grid. XML in .NET , XML basics, attributes, fundamental XML classes: Document, textwriter, textreader. XML validations, XML in ADO.NET, The XMLDataDucument.

UNIT-IV

Web services: Introduction, State management- View state, Session state, Application state. SOAP, web service description language, building & consuming a web service. Web Application deployment. Caching. Threading Concepts, Creating Threads in .NET, managing threads, Thread Synchronization Security features of .NET, Role based security & Code access security, permissions,

UNIT-V

Overview of C#, C# and .NET, similarities & differences from JAVA, Structure of C# program.

Language features: Type system, boxing and unboxing, flow controls, classes, interfaces, Serialization and Persistence, Serializing an Object, Deserializing an Object Delegates, Reflection.

TEXT BOOKS & REFERENCE BOOKS

1. The Complete Reference ASP.NET by Mathew Macdonald - TMH
2. Professional ASP.NET- Wrox publication
3. VB.NET Programming Black Book by steven holzner –dreamtech publications
4 . Introduction to .NET framework-Worx publication
5. ASP.NET Unleashed

MSC303-COMPUTER ARCHITECTURE

UNIT-I

Data representation Data Types and Number Systems, Binary Number System, Octal & Hexa-Decimal Number System, Fixed Point Representation, 1's & 2's Complement, Binary Fixed- Point Representation, Arithmetic Operation on Binary Numbers, Overflow & Underflow, Floating Point Representation, Codes, ASCII, EBCDIC Codes, Gray Code, Excess-3 & BCD, Error Detection & Correcting Codes Binary Storage and Registers.

UNIT–II

Boolean algebra and digital logic circuits -Logic Gates, AND, OR, NOT Gates and their Truth Tables, NOR, NAND & XOR Gates, Boolean Algebra, Basic Definition and Properties, Basic Boolean Law's, Demorgan's Theorem Map Simplification, Minimization Techniques, K Map – Two, Three and More variables maps, Sum of Product & Product of Sums, Don't care conditions, Combination & Sequential Circuits, Half adder & Full adder, Full subtractor, Full subtractor and decimal adder, Code Conversion, Multilevel NAND and NOR Circuits, Multiplexers and Demultiplexers, RAM and ROM Working & Circuit

UNIT–III

Sequential logic- Flip-Flops - RS, D, JK & T Flip-Flop, Triggering in flip flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment, flip flop excitation tables, Design procedure and design of counters. Design with equations, Registers, Counters and the memory unit, Shift registers, Ripple counters and Synchronous counters, Timings sequence digital logic families.

UNIT–IV

Registers transfer logic, Intel Register Transfer, Arithmetic Logic and Shift Micro Operation, Conditional, Constant Statement, Fixed Point Binary Data Floating Point Data, Instruction Codes. Input-output organizations- I/O Interface, Properties of simple I/O Devices and their controller, Isolated Vs Memory-mapped I/O, Modes of data transfer, Synchronous & Asynchronous data transfer

UNIT–V

Memory organization - Auxiliary Memory, Magnetic Drum, Disk & Tape, Semi-conductor memories, memory, Hierarchy, Associative memory, Virtual memory, Address space & memory space, Address mapping, page table, Page replacement, segmentation, Cache memory, Hit ratio, Mapping techniques, Writing into cache .

TEXT & REFERENCE BOOKS:

 MORRIS MANO, "COMPUTER SYSTEM ARCHITECTURE " *PHI Publication ISBN 81-203-0417-9*

 MORRIS MANO ,"**DIGITAL LOGIC AND COMPUTER DESIGN** " TMH *Publication* ISBN 0-07-462235-8

MSC30 4 - DATABASE MANAGEMENT SYSTEM

UNIT- I

Introduction to database systems-Operational Data, File Management Vs Data Management, characteristics of Database approach, An Architecture for a Database System, Advantages and Disadvantages of DBMS, Data associations - Entities, Attributes and Associations, Relationship among Entities, Representation of Associations and Relationship, Data Model Classification, Entity Relationship Model,Relational Data Model, Network Data Model, Hierarchical Data Model .Objects – Relational Model Objects, Relationship, Composite Objects, Procedures, Types and Inheritance.

UNIT-II

Relational data structure-A Review of Set Theory, Relations, Domains and Attributes, Tuples, Keys. Integrity Rules Extensions And Intensions, Base Tables, Indexes Relational Algebra and Operations, Retrieval Operations, Relational Calculus and Domain Calculus.

UNIT-III

Relational database design-Universal Relation, Anomalies in a Database, Normalization Theory, Functional Dependencies. Closure of a Set of F.D Covers, Non Redundant and Minimum Cover, Canonical Cover, First, Second and Third Normal Forms, Relations with more than one Candidate Key, Good and Bad Decompositions, Boyce Codd Normal Form, Multivalued Dependencies and Fourth Normal Form, Join Dependencies and Fifth Normal Form.

UNIT-IV

Query processing-Query Processing Stages, Query Interpretation, Equivalence of Expression, Query Execution Statistics. Query Execution Plan, Query Estimation, Query Evaluation, View Processing, Integrity & Security, Need for Integrity and Security Integrity Constraints. the distributed databases -Motivation for Distributed Database . Distributed Database concepts, Types of Distribution Architecture of Distributed Databases, The Design of Distributed Databases, Distributed Query Processing, Recovery In Distributed Systems, Commit Protocols for Distributed Databases, Multi Database System. Distributed Databases feature in Contemporary Database Management System.

UNIT-V

Oracle as enterprise database server. Client and server communication (SQL) Data Definition Language (DDL) - Creating, Altering & Dropping Tables, Integrity Constant, Data Manipulation Language (DML) - Select Insert, Update, Delete Commands, Transaction Control Using ,SQL - Commit, Rollback, Savepoint Command, Data Controlling Using SQL - Grant, Revoke, Set Role, SQL functions,Indexes and views PL/SQL, SQL & PL/SQL, Differences, Blocking Code for Clarity, Using Variables, Constant and Data Types, Assigning Data Base Values to Variables, Select Into ..... Cursors using Flow Control and Loop Statements, Goto Statement. Error handling built in PL / SQL Exceptions, User - Defined Exceptions, Unhandled Exception, the Raise - Application - Error Procedure. PL / SQL Programs Anonymous PL / SQL Blocks, Stored Procedure, Function & Packages, Using Database Triggers.

TEXTS & REFERENCE BOOKS:

 AN INTRODUCTION TO DATABASE SYSTEM (3rd ED.) BY *C. J. DATE*
 DATABASE SYSTEM CONCEPTS BY *HENRY F. KORTH*
 DATABASE MANAGEMENT SYSTEMS BY LEON & LEON , VIKAS PUBLICATIONS.
 AN INTRODUCTION TO DATABASE SYSTEM BY *BIPIN C. DESAI*
 FUNDAMENTALS OF DATABASE SYSTEM (2nd ED.) BY *ELEMESRI AND S. NAVATHE*

ELECTIVES I(CHOOSE ANY ONE)
MSC305(A)-ARTIFICIAL INTELLIGENCE
UNIT–I

General issues and overview of AI, AI Techniques, AL problems, AI Techniques, importance and areas of AI, problem solving state space search-DLF, BFS Production system, problem characteristics. Heuristic Search Techniques: Generate and Test, Hill Climbing, Best First Search, Problem reduction, Constraint satisfaction-Cryptarithmetic and problems.

UNIT-II

Knowledge representation & mapping, approaches to knowledge to representation, issues in knowledge representation, Representing simple facts in logic, representing instance and relationships, Resolution and natural deduction
Representing knowledge using rules, Procedural v/s Declarative knowledge, Logic programming, Forward v/s Backward chaining, Matching & control knowledge.

UNIT–III

AI programming language: Prolog- objects, relationships, facts, rules and variables, Prolog: Syntax and data structures, representing objects & relationships by using "trees" and "lists", use of cut, I/O of characters and structures.
Symbolic reasoning under uncertainty: Introduction to monotonic reasoning, Logics for Nonmonotonic reasoning, implementation issues, implementation: DFS & BFS.

UNIT–IV

Slot and filler structures: Semantic nets, frames, conceptual dependency, scripts, CYC Natural languages and NLP, Syntactic processing parsing techniques, semantic analysis case grammar, augmented transition net, discourse & pragmatic processing, translation.

UNIT-V

Definition and characteristics of Expert System, representing and using domain knowledge, Expert system shells Knowledge Engineering, knowledge acquisition, expert system life cycle & expert system tools, MYCIN & DENDRAL examples of expert system

TEXTS & REGERENCE BOOKS:
 ARTIFICIAL INTELLIGENCE _ *RICH & KNIGHT* TMH – ISBN-0-07-052263-4
 PROGRAMMING IN PROLOG-*CLOKSIN & MELLISH* – Narosa Publishing House -
ISBN-81-85198-15
 PRINCIPLES OF ARTIFICIAL INTELLIGENCE – *NILLSON* Harcourt Asia & Morgan
– ISBN – 1-55860-555-5
 FOUNDATION OF ARTIFICIAL INTELLIGENCE & EXPERT SYSTEM _
JANAKIRAMAN, SARUKESI & GOPAL KRISHNAN Macmillan

MSC305(B)- COMPILER DESIGNING
UNIT – I
Automata Introduction to Finite Automata, Structure Representation, Automata and
Complexity, Alphabets, String, Language Informal Picture of Finite Automata,
Deterministic Finite Automata, Nondeterministic Finite Automata, An Application .
UNIT – II
Introduction To Compiler, Overview of Compilation, Process , Typical Compiler
Structure, Implementing A Compiler . Programming Language Grammars, Elements of
A Formal Language Grammar, Derivation, Reduction & Syntax Trees, Ambiguity
Regular Grammar & Regular Expression – Context Free Grammar.
UNIT – III
Scanning & Parsing Techniques – The Scanner, Regular Grammar and Fsa, Top Down
Parsing, Parsing Algorithm, Top Down Parsing Without Backtracking, Predictive
Parsers, Bottom Up Parsing, Parsing, Lr Parsers, Shift Reduce Parsing .
UNIT – IV
Symbol Table Organization, Memory Allocation – Static & Dynamic Memory Allocation,
Compilation Control Transfer, Procedure Calls, Conditional Execution, Iteration
Control Construct.
UNIT – V
Lexical Syntax Errors, Semantic, Major Issues In Optimization, Optimizing ,
Transformations, Local Optimization, Program Flow Analysis, Global Optimization.
TEXTS & REFERENCE BOOKS :
 INTRODUCTION TO AUTOMATA THEORY, LANGUAGE AND COMUTATION - "
JOHN E - HOPCOFT, RAJEEV MOTWANI, JEFFERY D. ULLMAN 2ND EDITION
 *COMPILER CONSTRUCTION PRINCIPLES & PRACTICE – " D.M. DHAMDHERE 2ND
EDITION*
 PRINCIPLES OF COMPILER DESIGN – *AFFRED V. AHO, JEFFERY D.
ULLMANCOMPILERS PRINCIPLES, TECHNIQUES AND TOOLS – AFFRED V. AHO RAVI
SETHI, JEFFERY D. ULLMAN.*

MSC305(C)-DISCRETE MATHEMATICS
UNIT- I
Sets & preposition - Introduction, combinations of sets, finite and infinite sets,
unacceptable indefinite sets, principles of inclusion and exclusion, propositions.
Relations and functions– introduction, a relation model for database . Properties of
binary relations. Equivalence and lattices, partial ordering relations and
lattices . Chain and antichains, a job scheduling problems and the pigeonhole
principles.
UNIT- II
Recurrence relations and recursive algorithm-Introduction, Recurrence, Relations,
Linear Recurrence with Coefficient Solutions, particular solutions, Total Solutions.

UNIT-III

Groups and ring-Groups and Subgroups, Generators and Evaluations of Powers, Cosets and Lagrange Theorem, Permutation, Groups and Codes, Isomorphism and Automorphisms, Homomorphism and Normal Groups, Rings, Integral Domains and Fields, Polynomial Ring and Cyclic Codes.

UNIT- IV

Boolean algebra's-Lattices and Algebraic System, Principles of Duality, Basic Properties of Algebra's of System, Defined by Lattices, Distributive and Complemented Lattices, Boolean Lattices and Boolean Algebra's . Uniqueness Finite Boolean Algebra's. Boolean Functions and Boolean Expressions, Prepositional Calculus.

UNIT-V

Finite state machines-Introduction, Finite State Machines, Finite State Machine as Model of Physical System, Equivalent Machines, Finite State Machine as Language Recognizers.

TEXTS & REFERENCE BOOKS:

 ELEMENTS OF DISCRETE MATHEMATICS BY C.L.LIU– MCGRAW–HILLS PUB.
 APPLIED DISCRETE STRUCTURE FOR COMPUTER SCIENCE BY ALAN DOERR AND KENNETH LEVASSUR-GALGOTIA PUBLICATION

MSC401- PROGRAMMING WITH JAVA

UNIT-I

History and design features of JAVA, how java works, basics of JAVA, Applications and Applets, using the tools in JDK, javadoc, java, jdb etc. Applet Programming - Creating and executing Java applets, inserting applets in a web page, Java security. JAVA Language- Keywords, Constants, Variables, and Data Types.

Operators and Expressions, Decision making, Branching and Looping, Labeled Loops Statement, Jump statements: Break, Continue, and Return. Arrays and Strings-Creating an Arrays, one and two Dimension Arrays, String Array, String and String Buffer Classes, Wrapper Classes.

UNIT-II

Classes,Objects and Methods Defining a class, adding variables and Methods, creating objects constructors, class inheritance Inheritance, Basics types, using super, multi level hierarchy, abstract and final classes, object class, packages and interfaces, Access protection, Extending interfaces, packages. Exception Handling, Fundamentals exception types, uncaught exceptions, throws, throw, try -catch, final, built in exceptions, creating your own exceptions.

UNIT-III

Multithreading Fundamentals, Java Thread model : priorities, synchronization, messaging, thread class, Runnable interface, Interthread communication, suspending, resuming and stopping threads. Input/Output -Basics, Streams, Byte and Character streams, predefined streams, reading and writing from console and files .Using standard Java Packages (lang,util,io) Networking -Basics, networking classes and interfaces, using java.net package, doing TCP/IP and Datagram programming.

UNIT–IV

AWT Classes, Event Handling and Swing classes, AWT Programming, Working with windows, Graphics and Text, using AWT controls, Layout managers and menus, Handling image, animation, sound and video. Event Handling-Different mechanism, the Delegation Event Model, Event Classes, Event Listener interfaces, Adapter and Inner Classes. Java Swing -Japplet, Icons and Labels, Text fields, Buttons, Combo Boxes, Tabbed and Scroll Panes, Trees, Tables.

UNIT-V

JDBC -Setting the JDBC connectivity with a backend database. RMI -Two tier and Multitier Architecture, Object serialization, RMI Fundamentals, Programming using Java RMI Classes and interfaces . Servlets-Background, Life Cycle, Java Servlet Development kit, Servlet API, Handling HTTP Requests and responsing, Using Cookies, Session Tracking and security issues.

TEXTS & REFERENCE BOOKS :

1.JAVA THE COMPLETE REFERENCE BY PATRICK NAUGHTON AND HERBERT SCHILDT. TMH publication ISBN 0-07-463769-x

2.PROGRAMMING WITH JAVA BY E. BALAGURUSWAMY TMH Publications ISBN 0-07-463542-5

3.USING JAVA 1.2 BY JOSEPH WEBER. PHI – ISBN-81-203-1558-8

MSC402 -LINUX SERVER ADMINISTRATION

UNIT – I

Linux introduction and file system - Basic Features, Advantages, Installing requirement, Basic Architecture of Unix/Linux system, Kernel, Shell. Linux File system-Boot block, super block, Inode table, data blocks, How Linux access files, storage files, Linux standard directories, Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, more, less, creating and viewing files, using cat, file comparisons, View files, disk related commands, checking disk free spaces. Partitioning the Hard drive for Linux, Installing the Linux system, System startup and shut-down.

UNIT–II

Essential linux commands Understanding shells, Processes in linuxprocess fundamentals, connecting processes with pipes, Redirecting input output, manual help, Background processing, managing multiple processes, changing process priority, scheduling of processes at command, batch commands, kill, ps, who, sleep, Printing commands, grape, fgrep, find, sort, Cal, banner, touch, file, file related commands-ws, sat, cut, grep, dd, etc. Mathematical commands- bc, expr, factor, units. vi, joe, vim editor.

UNIT–III

Shell programming Basic of shell programming, Various types of shell, shell programming in bash, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, shell keywords, Creating Shell programs for automate system tasks and report printing, use of grep in shell, awk programming.

UNIT–IV

System administration Common administrative tasks, identifying administrative files – configuratinn and log files, Role of system administrator, Managing user accounts-adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, checking and monitoring system performance file security & Permissions, becoming super user using su.

Getting system information - host name, disk partitions & sizes, users, kernel. Backup and restore files, linuxconf. utility in GUI, reconfiguration hardware with kudzu Configure desktop-X configurator, understanding XF86config file, starting & using X desktop. KDE & Gnome graphical interfaces, changing X settings.

UNIT–V

Basic networking administration Setting up a LAN using Linux, choosing peer to peer vs client/server model, setting up an Ethernet Lan, configuring host computers, checking Ethernet connecting, connecting to internet, administration in a networked

environment, common networking administrative tasks, the network file system, configuring Ethernet, initializing Ethernet Interface, ifconfig, netstat and netconfig commands a TCP/IP networks, DNS services, routing
using Linux, SLIP & PPP services, UUCP. Installation & Administration of mail server, ftp server and Apache web server.

TEXTS & REFERENCES BOOKS :

 USING LINUX BY JACK TACKETT, DAVID GUNTER, PHI, EEE EDITION

 RED HAT LINUX7.X BIBLE –CRISTOPHER NEGUS, IDG BOOKS INDIA LTD.

 LINUX INSTALLTION AND ADMINISTRATION, NICHOLAS WELLS, COURSE TECHNOLOGY (VIKAS PUBLISHING, NEW DELHI).

ELECTIVE II (CHOOSE ANY ONE)

MSC403(A) – DATA WAREHOUSING AND MINING

Unit – I

Need for strategic information, Decision support system, Knowledge discovery & decision making, need for data warehouse, definitions of Data warehousing and data mining, common characteristics of Data warehouse, Data Marts, Metadata, Operational versus analytical databases, trends and planning of Data warehousing.

Unit – II

Defining business requirements, Data modeling strategy, Fact tables, dimensions, Star schema and other schemas, Multi dimensional data models, Data Cube presentation of fact tables, using the Data warehouse, Designing tools for Data warehouse, OLAP models and operations.

Unit – III

Architectural components, Infrastructure: Operational & Physical, Extraction, Transformation and Loading, Components of an Oracle Data warehouse, Data Transformation Functions, DBA responsibilities, Capacity Planning.

Unit – IV

Implementation of Data warehouse, Physical design: steps, considerations, physical storage, indexing, Performance Optimization, Data warehouse deployment activities, Data security, backup and recovery concepts, Data warehouse Maintenance.

Unit – V

Basics of data mining, related concepts, Data mining techniques, Data Mining Algorithms -- Classification, Clustering, and Association rules, Knowledge Discovery in databases(KDD) Process, Introduction to Web Mining:

Reference Books:

• Data Warehousing Fundamentals , by Paulraj Ponnian, John Wiley.

• Data warehousing with oracle by sima yazdani – shirley s. Wong

• Data Mining Concepts and Techniques, Han Kamber, Morgan Kaufmann

GUIDELINES FOR SUBMISSION OF M.SC(CS),/M.SC(IT) MAJOR PROJECT

All the candidates of MCA/M.Sc(CS),/M.Sc(IT) final project are required to submit a project report based on the work done by him/her during the project period.

THE GUIDE

The Guide for MCA/M.Sc(CS),/M.Sc(IT) would be a person having MCA/B. Tech with 3 years experience in IT.

A guide cannot guide more than three projects of SRV at a given time.

PROJECT TIME / MAN-HOURS

The MCA Major Projects would be approximately 500 man-hours and carries a total of 500 marks (80% for project evaluation and 20% for

viva-voce). The M.Sc(CS),/M.Sc(IT) Major Projects would be approximately 225 man-hours and carries a total of 300 marks (80% for project evaluation and 20% for viva-voce). Additional two months time is given to the students for Project work to M.Sc(CS),/M.Sc(IT) students. The Project topics should be based on syllabus or beyond. Number of students in a project group will not be more than two for M.Sc(CS),/M.Sc(IT) and not more than two for MCA.

SUMMARY/ABSTRACT

All students must submit a summary/abstract separately with the project report. Summary, preferably, should be of about 3-4 pages. The content should be as brief as is sufficient enough to explain the objective and implementation of the project that the candidate is going to take up. The write up must adhere to the guidelines and should include the following

☐ Name / Title of the Project

☐ Statement about the Problem

☐ Why is the particular topic chosen?

☐ Objective and scope of the Project

☐ Methodology (including a summary of the project)

☐ Hardware & Software to be used

☐ Testing Technologies used

☐ What contribution would the project make?

TOPIC OF THE PROJECT- This should be explicitly mentioned at the beginning of the Synopsis. Since the topic itself gives a peep into the project to be taken up, candidate is advised to be prudent on naming the project. This being the overall impression on the future work, the topic should corroborate the work.

OBJECTIVE AND SCOPE: This should give a clear picture of the project. Objective should be clearly specified. What the project ends up to and in what way this is going to help the end user has to be mentioned.

PROCESS DISCRIPTION: The process of the whole software system proposed, to be developed, should be mentioned in brief. This may be supported by DFDs / Flowcharts to explain the flow of the information.

RESOURCES AND LIMITATIONS: The requirement of the resources for designing and developing the proposed system must be given. The resources might be in form of the hardware/software or the data from the industry. The limitation of the proposed system in respect of a larger and comprehensive system must be given.

CONCLUSION: The write-up must end with the concluding remarksbriefly describing innovation in the approach for implementing the Project, main achievements and also any other important feature that makes the system stand out from the rest.

The following suggested guidelines must be followed in preparing the Final project Report:

Good quality white executive bond paper A4 size should be used for typing and duplication. Care should be taken to avoid smudging while duplicating the copies.

Page Specification :(Written paper and source code)

Left margin - 3.0 cms

Right margin- 2.0 cms

Top margin 2.54 cms

Bottom margin 2.54 cms

Page numbers - All text pages as well as Program source code listing should be numbered at the bottom center of the pages.

Normal Body Text: Font Size: 12, Times New Roman, Double Spacing, Justified. 6 point above and below para spacing.

Paragraph Heading Font Size: 14, Times New Roman, Underlined, Left Aligned. 12 point above & below spacing.

Chapter Heading Font Size: 20, Times New Roman, Centre Aligned, 30 point above and below spacing.

Coding Font size : 10, Courier New, Normal

Submission of Project Report to University : The student will submit his/her project report in the prescribed format. The Project Report should include:

☐ Two copy of the summary/abstract.

☐ Two hard Copies of the Project Report

☐ Soft copy of project on Floppy/CD in a thick envelope pasted inside of the back cover of the project report.

☐ The Project Report may be about 75 pages (excluding coding).

FORMAT OF THE STUDENT PROJECT REPORT ON COMPLETION OF THE PROJECT

1. Cover Page as per format
2. Acknowledgement
3. Certificate of the project guide/Centre Manager as at Annexure III
4. Certificate of the Company/Organisation(for direct candidates)
5. Synopsis of the Project
6. Main Report

☐ Objective & Scope of the Project

☐ Theoretical Background

☐ Definition of Problem

☐ System Analysis & Design vis-a-vis User Requirements

☐ System Planning (PERT Chart)

☐ Methodology adopted, System Implementation & Details of Hardware & Software used

☐ System Maintenance & Evaluation

☐ Cost and benefit Analysis

☐ Detailed Life Cycle of the Project

o ERD, DFD

o Input and Output Screen Design

o Process involved

o Methodology used for testing:

o Test Report, Printout of the Reports, Printout of the Code Sheet

☐ User/Operational Manual - including security aspects, access rights, back up, controls, etc.

Annexure:

1. Brief background of the organisation where the student has developed the project.
2. Data Dictionary (This should give a catalogue of the data elements used in the system / sub system developed. The following are the details required. Write NA if NOT applicable : Data Name , Aliases, if any Length (Size) Type, Numeric, Alpha, Binary etc.
3. List of abbreviations, Figures, Tables
4. References Bibliography Website
5. Soft copy of the project on CD/Floppy

Guide Name
Full Address