SYLLABUS & SCHEME

Subject Code	Subject Name	Year	Scheme			IA	ESE	Total Marks
			L	T	P			
MSCcS-101	Fundamental of I.T. & Digital Electronics	Year 1	4			30	70	100
MSCcS-102	PC Package	Year 1	3	1		30	70	100
MSCcS-103	Accounting with Tally	Year 1	4			30	70	100
MSCcS-104	Operating System	Year 1	4			30	70	100
MSCcS-105	Internet & Web Page Designing	Year 1	3	1		30	70	100
MSCcS-106	Programming in C Language	Year 1	4			30	70	100
MSCcS-107	OOP with C++	Year 1	3	1		30	70	100
MSCcS-108	System Analysis & Design	Year 1	4			30	70	100
MSCcS-109	VB.NET	Year 1	3	1		30	70	100
MSCcS-110	LAB: Coreldraw & Photoshop	Year 1			4	30	70	100
MSCcS-111	LAB: 102, 103, 104	Year 1			4	30	70	100
MSCcS-112	LAB: 106, 107, 108	Year 1			4	30	70	100
MSCcS-113	MINOR PROJECT	Year 1	1		3	30	70	100
	TOTAL :		**33**	**4**	**15**	**390**	**910**	**1300**
MScCS-201	Data Structures & Algorithm	Year 2	4			30	70	100
MScCS-202	Programming with Java	Year 2	3	1		30	70	100
MScCS-203	RDBMS with Oracle/SQL	Year 2	3	1		30	70	100
MScCS-204	Discrete Mathematics	Year 2	4			30	70	100
MScCS-205	Computer Networks	Year 2	4			30	70	100
MScCS-206	Computer Graphics	Year 2	4			30	70	100
MScCS-207	Software Engineering	Year 2	4			30	70	100
MScCS-208	ASP.NET through C#	Year 2	3	1		30	70	100
MScCS-209	Server Administration with Linux & Windows	Year 2	3	1		30	70	100
MScCS-210	LAB: 202, 203	Year 2			4	30	70	100
MScCS-211	LAB: 208, 209	Year 2			4	30	70	100
MSCcS-212	PROJECT	Year 2	1		7	60	140	200
	TOTAL :		**33**	**4**	**15**	**390**	**910**	**1300**
	GRAND TOTAL :							**2600**

MSCCS – 1st Year

MSCCS-101: Fundamental of I.T. & Digital Electronics

UNIT – 1

Computer Ovderview :

Computer Definition, Functionality of Computer, Advantage of Computer, Disadvantage of Computer.

Computer Applications :

Business, Banking, Insurance, Marketing, Healthcare, Engineering Design, Military, Communication, Government.

UNIT – 2

Computer Generations :

Generation & Description, Computer Types: PC, Workstation, Mini Computer, Mainframe & Super Copmputer.

Computer Components :

Input Unit, Output Unit, Memory & Storage Unit, Control Unit, Arithmetic logic Unit, Input Device- Keyboard, Mouse, Joystick, Light Pen, Track Ball, Scanner, Digitizer, Microphone, MICR, OCR, BCR, OMR & Output Devices- Monitors, Printers.

UNIT – 3

Computer Memory :

Cache Memory, Primary Memory, Second Memory, RAM & ROM, Computer Motherboard, Computer Memory Units, Computer Ports- Serial, Parallel, PS/2, USB, VGA, Ethernet Port etc. Computer Hardware.

Computer Software :

System Software, Application Software, Relationship between hardware & Software.

UNIT – 4

Number System :

Decimal Number System, Binary Number System, Octal Number System, Hexadecimal Number System, Decimal to Other Base System, Other Base System to Decimal System, Other Base to Non Decimal System, Shortcut Methods.

Data Communication, Information & Network:

What is Information, Data processing Cycle. Data Communication & Network.

UNIT – 5

Computer Networking :

Characteristics of Computer Network.

Operating System :

Objectives of OS, Characteristics of OS.

Computer Internet & Intranet

Internet, Similarities of Internet & Intranet, Differences of Internet & Intranet, How to Buy A Computer.

REFERENCE BOOK

1 *COMPUTER FUNDAMENTAL (PYAGYA PUBLICATION, MATHURA).*
2 *COMPUTER FUNDAMENTAL AND ORGANIZATION(B.RAM),NEW AGE INTERNATONAL PUBLISHER LTD.*
3 *RAJARAMAN V, "FUNDAMENTALS OF COMPUTERS", PHI*

MSCCS-102: PC PACKAGE

- **UNIT-I:**

Introduction to MS-Word, Parts of MS-Word Windows (Title Bar, Menu Bar, Tool Bar, Ruler, Status Area) Creating New Documents, Opening an existing Documents, Find and Replacing, Moving and Copying Text, Page Set-up, Margins and Gutters, Creating a document using Templates and Wizards.

Text Formatting-Changing Fonts and Font size, Make Text Bold, Italic and Under line, Spacing, Centre, Right and Left alignment, Page Breaks, Headers and Footers, Saving Documents.

- **UNIT-II:**

Spell Checking, Printing, Creating a table using table Menu-Entering and Editing text, Selecting, Adding and Deleting Rows and Columns, Changing and Shading Template and Wizard, Working with Graphics, Drawing objects, Using frames to position objects, Mail Merge.

- **UNIT-III:**

Introduction to MS-Excel, Creating a simple worksheet, Entering data into worksheet, Computations in Worksheets, Printing the Worksheet, Creating Graphs and Charts, What if analysis (Data Sort, Fill, Query, Filter), Copying, Renaming, Moving, Adding and Deleting, Worksheet.

Using Formulas and Functions-Formula, Characteristics of formula, Entering formula, Copying formulas, Types of functions (date, Mathematical, Logical, Statistical), Function Wizard, Formatting of using Auto format.

- **UNIT-IV:**

Introduction to MS-PowerPoint, PowerPoint elements, Templates, Wizards, Views and Color Schemes, Exploring PowerPoint menu, Adding text, Adding title, Adding text area, Resizing text boxes, Adding art, Starting a New Slide, Slide Transition Effects and other Animation Effects, Starting a Slide Show, Saving Presentation, Printing Slide, Display of Slide Show.

- **UNIT-V:**

Introduction to Databases, Starting Access 2007 Getting Started Page and Opening a Database, Understanding the Access Program Screen, Understanding the Ribbon, Using the Office Button and Quick Access Toolbar, Creating a New Database, Creating a Table, Modifying a Table, Creating a Query, Sorting a Query, Using AND and OR Operators in a Query

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REFERENCE BOOK

1 *RAVINDRA SHARMA (ASIAN PUBLICATION)*
2 *PRYAGYA PUBLICATION (MATHURA)*
3 *MICROSOFT OFFICE (VISHNU PRIYA SINGH)*

MSCCS-103: ACCOUNTING WITH TALLY

UNIT-I TALLY FUNDAMENTALS

Basic Concepts of Accounting, Financial Statements, Financial Statement Analysis, Cost Centre, Basic concepts of Inventory.2.Tally Configuration & INI setup, Data Directory & Folders configuration, Single & Multiple User, Tally Screen Components, Mouse / Keyboard Conventions & Key, Combinations, Switching between screen areas, Quitting Tally. Maintaining Company Data, Basic Company Details, Create/Alter/Select/Load/Close a Company, Chart of Accounts, Company Features, and Configuration.

UNIT-II BASIC ACCOUNTING:

Create, Alter & Display Groups and Ledgers, All accounting voucher types, Accounting Voucher transactions, Account Invoice transactions, Excise Invoice, Export Invoice, Transactions using Bill-wise details, Bank Reconciliation, Interest calculations using simple & advance parameters, Interest calculations on outstanding balances & on invoices, Use of voucher class, adjustment of interest, Creation of voucher class, Invoice entry in a class situation, Create, Alter & Delete Budgets for groups, ledgers & cost centre, Defining credit limit & credit period, Display Budgets & variances, Create, Alter & Delete a scenario. Journal Transactions, payment voucher, Godown summary .

UNIT - III ACCOUNTING REPORTS AND BOOKS OF ACCOUNTS

Reports like balance sheet, Profit & Loss account, Ratio analysis Trial Balance.
Accounts books like cash / bank book, All Ledgers Group summary & vouchers, Sales, purchase & journal registers, Cost centre & category summary, Cost centre breakup ledger & group breakup, outstanding receivables & payables, interest receivable & payable, Statistics, Cash & Fund flow, Day book List of Accounts, Reversing journals, optional vouchers, post-dated vouchers .

UNIT - IV INVENTORY ACCOUNTING AND INVENTORY REPORTS

Create, Alter & Display Stock Groups and Stock Items, All inventory voucher types and transactions Inventory details in accounting vouchers, Reports like Stock summary, Inventory books like Stock item, Group summary, Stock transfers, Physical stock register, Movement analysis, Stock group & item analysis, stock category analysis Ageing analysis, Sales order & Purchase order book, Statement of inventory related to Godowns, categories, stock query, Reorder status, Purchase & Sales order summary, Purchase & Sales bill pending, Exception reports like negative stock & ledger, overdue receivables & payables, memorandum vouchers, optional vouchers, post-dated vouchers, reversing journals.

UNIT – V PRINTING, HOUSEKEEPING AND ADMINISTRATION

Cheque Printing, Common printing options, Different printing formats, Multi-Account printing, Dynamic- Report specific options, Creating Group Company, Use of Tally vault, Using Security control & defining different security levels, Use of Tally Audi,. Back-up & Restore, Splitting company data, Export & import of Data, ODBC compliance, use of E-mail, Internet publishing, Upload, web browser & online help, Re-write data.

REFERENCE BOOK

1 *PRYAGYA PBUBLICATION (MATHURA)*
2 *Computerised Accounting Using Tally.ERP 9*
By : Tally Education Private Limited
3 *Computerised Accouting tally (BY : Vikas Gupta)*

MSCCS-104: OPERATING SYSTEM

UNIT – 1

Operating System Concepts:

Feature of OS, Objectives & Characteristics of OS, History , Type of OS, Booting , Cold Reboot, Input/ Output System, Dos & Disks, Important Terms- Dos Prompt, Command, Compiler, FAT, Interface, Logged Disk, Error Massage, Bios, Sectors, Chache, Conventional Memory, Cluster.

UNIT – 2

Internal Commands in MS-DOS:

Internal Commands- Date, Time, Ver, Vol, Cls, Prompt, Dir, CD, MD, RD, Path, Copy, Copy Con, Del, REN.

UNIT – 3

External Commands in MS-DOS:

FORMAT, LABEL, CHKDSK, DISKCOPY, UNFORMAT, UNDELETE, SYS, TREE, DELTREE, MOVE, MORE, BACKUP, RESTORE, ATTRIB, XCOPY, MODE, DEFRAG, Batch File.

UNIT – 4

Introduction to Window 7:

Windows Features- Desktop, Icon, Dialogue Box, Start Menu, Taskbar, Start Up & Shut Down, Manipulating Windows- Maximize, Minimize, Resize, Close, Saving, Deleting File, Create Folder, Help, Setting, Search, Windows Keyboard Shortcuts, Right Click Menu.

UNIT – 5

Linux Operating System :

What is Linux, Kernal, Shell, File System Hierarchy Standard, Linux Basic Commands- pwd, ls, cd, mkdir, rm, touch, man, cp, mv, locate, echo, cat, vi, sudo, df, du, tar, zip, uname, apt-get, chmod, ping Etc.

TEXT & REFERENCE BOOKS:

1 *DOS QUICK REFERENCE BY RAJEEV MATHUR, GALGOTIA PUBLICATIONS LINUX*
2 *COMPLETE BY BPB PUBLICATIONS*
3 *PETER NORTON COMPLETE GUIDE TO LINUX BY PETER NORTON, TECHMEDIA PUBLICATIONS*
4 *LEVEL MODULE M 1.1 INFORMATION TECHNOLOGY BY KHANNA BOOK PUBLICATIONS, NEW DELHI*
5 *WINDOWS XP COMPLETE REFERENCE, BPB PUBLICATION*

MSCCS-105: INTERNET AND WEB PAGE DESIGN

UNIT – 1

Overview of Internet :

What is Internet, Internet Evolution, Advantage & Disadvantage of Internet, Extra Net, Reference Models, Layeys, TCP/ IP Model, Domain name system Architecture, DNS Working.

UNIT – 2

Internet Services & Protocols :

Communication Services, Web Services, World Wide Web, Video Conferencing, Internet Protocols, TCP, IP, UDP, FTP, HTTP, Email, IMAP, POP, Email Working, E-mail Security.

UNIT – 3

Web Designing Concepts & Hosting :

Wireframe, Web Designing Tools, Web Development Process, Websites Hosting, Types of Hosting, Web sites Security, World Wide Web Evolution & Architecture, Web Browsers, Web Server, Proxy Server, Search Engines, Usenet, Digital Signature, Firewall Security.

UNIT – 4

HTML – Overview :

HTMl Document Structure, Basic Tags- Heading Paragraph, Line Break, Center Etc, HTML Elements, HTML Attributes.

UNIT – 5

HTML Formating :

Type Style, Meta Tags, Comments, Images,Tables, Text Links, HTML Fonts etc.

REFERENCE BOOK

1 PRYAGYA PUBLICATION : MATHURA

MSCCS-106: Programming Language in C Language

Chapter – 1

Basic of C Language:

Overview of C, Features of C , My First C Program, Compile and Run C program, C syntax Rules, Keyword and identifier.

Chapter – 2

Operator and Data type in C:

Operator in C Language: arithmetic, R elational, Logical & Bitwise operator, Data type in C.

UNIT - 2

Chapter – 3

Variables in C :

Variable in C,Data type of Variable, Declaring,Defining and Initializing a variable, Difference between Variable and identifier, C input & output, Decision making in C.

Chapter – 4

Switch Statement & Looping in C :

Switch Statement in C,How to use Loops in C, Types of Loops.

UNIT - 3

Chapter – 5

Arrays & Storage Classes :

Arrays in C, Two dimensional Arrays, String & Character Arrays, String Handling Functions, Storage Classes in C, External & Global Variable, Static Variables, Register Vari able.

Chapter – 6

Functions in C :

Functions in C, Use of Functions,Passin g Arguments to a Functions, Type of user defined Functions, Nesting of Functions, Recursion, Call of Function, Pass Array to a Functio n.

UNIT - 4

Chapter – 7

Structures & Unions in C :

Structure, Declaring Structure Variables, Arrays of Structure, Nested Structures, typedef in C, Union in C language.

Chapter – 8

Pointers in C :

Introductions to Pointers, Concept, Ben efit of Pointers, Declaring & Intializing and using a pointer of Variabl e.

UNIT - 5

Chapter – 9

File Input/Output in C :

File Input/Output in C,Creating or Opening a file, Closing a file, Difference between Append & Write Mode.

Chapter – 10

Dynamic Memory Allocation i n C :

Memory allocation process, Allocating block of Memory, Command Line Argument in C.

REFERENCE BOOK

1 THE COMPLETE REFERENCE WITH C (HERBERT SCHILDT)
2 LET US C by Yashwant Kanetkar
3 PROGRAMMING IN C (E. BALAGURUSWAMY)
4 PRYAGYA PUBLICATION (MATHURA)

MSCCS-107: OOPS WITH C++

UNIT – 1

Introduction to C++ :

Overview of C++, Benefits of C++ Over C, OOPS Features, Basic of C++, Data Types in C++, Modifiers, Operators in C++, Looping, Storage Classes.

UNIT – 2

Introduction to Classes and Objects :

Classes in C++, Defining Class and Declaring Objects, Accessing Data Member of Class, Types of Member Functions, Default Arguments, Constructors.

UNIT – 3

Constructor Overloading :

Constructor Overloading, Destructors, Const Keyword, Variables, Pointers, Function Argument and Return Types, Class Data Members, Class Member Function, Objects.

UNIT – 4

Overview of Inheritance and Polymorphism :

Introduction of Inheritance, Types of Inheritance, Polymorphism, Virtual Function, Abtract Class.

UNIT – 5

Operator Overloading :

Operator Overloading Instruction, Implemeting Operator Overloading, Examples Of Overloading, Exception Handling in C++, Standard Exceptions In C++.

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*
• *M KUMAR "PROGRAMMING IN C++", TMH PUBLICATIONS*

MSCCS-108: System Analysis & Design

UNIT-1

1. SYSTEMS ANALYSIS AND DESIGN — OVERVIEW

Systems Analysis, Systems Design, What is a System?, Elements of a System, Types of Systems, Systems Models, Categories of Information.

2. SYSTEM DEVELOPMENT LIFE CYCLE

Phases of SDLC, Life Cycle of System Analysis and Design, Role of System Analyst, Attributes of a Systems Analyst

UNIT-2

3. SYSTEM PLANNING

What is Requirements Determination?, Major Activities in requirement Determination, Information Gathering Techniques, Feasibility Study, Steps Involved in Feasibility Analysis, Types of Feasibilities

4. STRUCTURED ANALYSIS

What is Structured Analysis?, Structured Analysis Tools, Data Flow Diagrams (DFD) or Bubble Chart, Data Dictionary, Decision Trees, Decision Tables, Structured English, Pseudocode, Guidelines for Selecting Appropriate Tools.

UNIT-3

5. SYSTEM DESIGN

Inputs to System Design, Outputs for System Design, Types of System Design, File Organization, File Access, Documentation Control, Types of Documentations, User Documentation, System Documentation

6. DESIGN STRATEGIES

Top-Down Strategy, Bottom-Up Strategy, Structured Design, Factors Affecting System Complexity

UNIT-4

7. INPUT / OUTPUT & FORMS DESIGN

Input Design, Output Design, Forms Design

8. TESTING AND QUALITY ASSURANCE

Testing, Types of Testing, Rules for System Testing, Quality Assurance

UNIT-5

9. SYSTEM IMPLEMENTATION AND MAINTENANCE

Training, Training Methods, Conversion, System Maintenance / Enhancement

10. SYSTEM SECURITY AND AUDIT

System Audit, Audit of Computer System Usage, Audit Trial, Audit Methods, Audit Considerations, Security, Control Measures, Risk Analysis

TEXT & REFERENCE BOOKS:

• *SYSTEM ANALYSIS & DESIGN BY V K JAM, DREAMTECH PRESS*
• *MODERN SYSTEM ANALYSIS &DESIGN BY A HOFFER, F GEORGE, S VALACIAH LOW PRICED EDN. PEARSON EDUCATION.*
• *INFORMATION T ECHNOLOGY & COMPUTER APPLICATIONS BY VK.KAPOOR SULTAN CHAND& SONS, NEW DELHI.*

MSCCS-109: VB.NET

UNIT–I

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies: types of assemblies, class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Project Explorer, Toolbox, Properties Window, form designer, form layout, immediate window. Event driven Programming - Methods and events related with mouse and keyboard.

UNIT–II

The VB.NET Language- Console Programming, Declaring variables, Data Types, Scope& lifetime of a variable, Arrays, types of array, control array

Subroutine, Functions, Passing argument to functions, Optional Argument, Returning value from function.

Control flow statements: Decisions and Conditional statement, Loop statement. Exceptions

Working with Forms: Creating Forms, Building User Interface Web Forms, Loading, showing and hiding forms, working with multiple forms, controlling One form within another.

UNIT – III

GUI Programing with windows form: VB.Net Controls, Text box control, label control, button control, Listbox, Combo box, checked box, Picture box, Radio button, Pannel, scroll bar, Timer control , there Properties, Methods and events, adding controls at runtime.

Dialog Boxes - Common dialog control: File, save, Print, Help.

Designing menues : Creating Menu and Menu Items, access & shorcut keys.

MDI forms : Properties of Parent & child form, working with parent and child menus.

UNIT–IV

Object oriented Programming: Classes & Namespaces, objects, data members, Properties, Methods, raising and handling Events, constructors. Inheritance, Access Specifies: Public Private, Protected, overloading, overriding, Creating Interfaces, multiple interfaces, My Base & My Class keywords.

Concept of OLE, The COM technology, Advantages of COM+, COM & .NET, Create User control, register user control, access com component in .net application.

Deployment of .NET application.

UNIT–V

Accessing Database with ADO.NET (visually): Create connection with sever explorer, Creating data connection using data Connection, Command, Adapter, Dataset and DataReader controls.

Data binding with data grid and basic controls. The Data Form wizard.

Accessing Database using ADO.NET Object model (through code): create Connection object, Command object, DataAdapter object, DataSet object. Add, delete, move & update records to dataset. Executing SQL query, operation on data rows and columns.

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*

MSCCS-110: LAB DTP (Coreldraw & Photoshop)

UNIT - I

D.T.P For Publications: Introductions to Printing, Types of Printing, Offset Printing, Working of offset Printing, Transparent Printout, Negative & Positives for Plate were making, Use of Desk Top Publishing in Publications, Importance of D.T.P in Publication, Advantage of D.T.P in Publication, Mixing of graphics & Image in a single page production, Laser printers - Use, Types, Advantage of lager printer in publication.

UNIT - II

Introduction to Tools of CorelDraw, Managing Palettes ,Working with Images, Patterns and Textures, ,Working with Shapes, Colours and Fills ,Image Rasterisation and Editing, Transformation Menu.

UNIT - III

Coreldraw Page Setup and Designing, Using Styles and Templates, Working with Text, Formatting Text, Text Attributes. Designing Different Page Layouts, Column Layout, Working with Layers., Special Effect to Objects and Texts, Contour Tool, Layout for News Paper and Magazines. Preparation of Visiting Cards & Invitation Cards, & Logo Design,

UNIT - IV

Introduction to Adobe Photoshop & Documents ,Various Graphic Files and Extensions Vector Image and Raster Images, Various Colour Modes and Models.

UNIT - V

Introduction to Screen and Work Area, Photoshop Tools & Palettes ,Use of Layers & Filters Working with Images.

REFERENCE BOOK

1 BPB DTP COURSE (SATIS JAIN)
2 PRYAGA PBUBLICATION (MATHURA)
3 SMART DTP COURSE (SAUMYA RAJAN BEHRA)
4 CORELDRAW X4 FOR SIMPLE STEPS

MSCCS-201: Data Structures & Algorithm

UNIT-1
Introduction to Data Structure, What is an algorithm, Time complexity of Algorithm.

UNIT-2
Introduction to Sorting, Bubble Sort, Insertion Sort, Selection Sort, Quick Sort, Merge Sort, Heap Sort, Searching Algorithms on Arrary, Binary Search.

UNIT-3
Stacks, Basic feature of stacks, Applications of Stack, Implementation of stack, Algorithm for PUSH operation, POP operation, Top operation, Search operation, Que Data Structure, DEQUEUE operation, Queue Data structure using stacks.

UNIT-4
Introduction to Linked Lists, Advantages and Disadvantages of Linked List, Types of Linked Lists, Linear Linked List, Circular Linked List, Implementing Circular Linked List.

UNIT-5
Graph & Tree algorithms, Graphs, Trees, DAG vs Tree, Binary Tree, Data Structure representation, Searching Algorithm, Breath First Search (BSF) and its implementation, Depth First Search (DFS) and its implementation.

TEXT & REFERENCE BOOKS:

• *FUNDAMENTALS OF DATA STRUCTURE, BY S. SAWHNEV & E. HOROWITZ*
• *DATA STRUCTURE: BY T REMBLEY & SORRENSON*
• *DATA STRUCTURE: BY LIPSCHUISTS (SCHAUM 'S OUTLINE SERIES MCGRAW HILL PUBLICATION)*
• *FUNDAMENTALS OF COMPUTER ALGORITHM: BY ELLIS HOROWITZ AND SARTAJ SAWHNEY*

MSCCS-202: 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.

UNIT-II

Classes,Objects and Methods Defining a class, adding variables and Methods, creating objects constructors, Wrapper Classes. Inheritance, Basics types, using super, multi level hierarchy, abstract and final classes, object class, packages and interfaces, Access protection, Extending interfaces, packages.

UNIT-III

Multithreading Fundamentals, Java Thread model : priorities, synchronization, messaging, thread class, Runnable interface, Interthread communication, suspending, resuming and stopping threads.

UNIT–IV

Exception Handling, Fundamentals exception types, uncaught exceptions, throws, throw, try -catch, final, built in exceptions, creating your own exceptions.

Input/Output -Basics, Streams, Byte and Character streams, predefined streams, reading and writing from console and files .Using standard Java Packages (lang,util,io)

UNIT-V

Packages ; Fundamental of Packages, Usage of Packages, Applets and Appletviewer . Life cycle of an Applet.

TEXT & REFERENCE BOOKS :

• *JAVA THE COMPLETE REFERENCE BY PATRICK NAUGHTON AND HERBERT SCHILDT. TMH PUBLICATION ISBN 0-07-463769-X*

• *PROGRAMMING WITH JAVA BY E. BALAGURUSWAMY TMH PUBLICATIONS ISBN 0-07-463542-5*

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

MSCCS-203: RDBMS

UNIT – 1
Overview of Database, Components of database, Functions & advantage of DBMS, Database Architecture, Database Model, Codd's Rule, RDBMS Concepts, Database Keys.

UNIT – 2
Normalisation of Database, E-R Diagram, Components of E-R Diagram, Entity, Attribute, Relationship, Binary Relationship, Recursive Relationship, Generalization, Specialization, Aggregration.

UNIT – 3
Introduction to SQL, SQL Commands, DDL commands: create, alter, truncate, drop, rename, DML commands: insert, update, delete, merge,

UNIT – 4
TCL commands: commit, rollback, savepoint, DCL commands: grant, revoke, DQL commands: select

UNIT – 5
Division Operator in SQL

UNIT – 6
Advance SQL

TEXT & REFERENCE BOOKS:

• *SILVERSCHATZ KORTH AND SUDARSHAN-DATABASE SYSTEM CONCEPTS, 6TH ED. TATA MC-GRAW HILL.*
• *RAGHU RAMA KRISHNAN-DATABASE MANAGEMENT SYSTEMS, 2ND ED. TATA MC-GRAW HILL*
• *RAJESH NARANG – DATABASE MANAGEMENT SYSTEM,2ND ED.PHI*
• *R. ELMASRI ET. AL "FUNDAMENTALS OF DATABASE SYSTEMS". 3RD EDITION – ADDISON WESLEY, (INDIAN REPRINT), NEW DELHI.*
• *C.J.DATE, DATA BASE SYSTEMS,* Vol I & II

MSCCS-204: Discrete Mathematics

UNIT-1 : SETS & RELATIONS

1. Discrete Mathematics – Introduction

2. Sets : Set – Definition, Representation of a Set, Cardinality of a Set, Types of Sets, Venn Diagrams, Set Operations, Power Set, Partitioning of a Set

3. Relations: Definition and Properties, Domain and Range, Representation of Relations using Graph, Types of Relations

UNIT-2 : MATHEMATICAL LOGIC

4. Propositional Logic: Definition, Connectives, Tautologies, Contradictions, Contingency, Propositional Equivalences, Inverse, Converse, and Contra-positive, Duality Principle, Normal Forms

5. Predicate Logic : Definition, Well Formed Formula, Quantifiers, Nested Quantifiers

6. Rules of Inference: What are Rules of Inference for?, Table of Rules of Inference, Addition, Conjunction, Simplification, Modus Ponens, Modus Tollens, Disjunctive Syllogism, Hypothetical Syllogism, Constructive Dilemma, Destructive Dilemma

UNIT-3 : GROUP THEORY AND PROBABILITY

7. Operators and Postulates: Closure, Associative Laws, Commutative Laws, Distributive Laws, Identity Element, Inverse, De Morgan's Law

8. Probability : Basic Concepts, Probability Axioms, Properties of Probability, Conditional Probability, Bayes' Theorem

UNIT-4 : MATHEMATICAL INDUCTION & DISCRETE STRUCTURE

9. Mathematical Induction: Definition, Strong Induction

10. Spanning Trees: Minimum Spanning Tree, Kruskal's Algorithm, Prim's Algorithm

UNIT-5 : BOOLEAN ALGEBRA

11. Boolean Expressions and Functions : Boolean Functions, Boolean Expressions, Boolean Identities, Canonical Forms, Logic Gates.

12. Simplification of Boolean Functions: Simplification Using Algebraic Functions, Karnaugh Maps, Simplification Using K- map.

Text/References:

1. Keneth H. Rosen, "Discrete Mathematics and Its Applications", TMH
2. C.L. Liu, "Elements of Discrete Mathematics", TMH.
3. Kolman, Busby & Ross, "Discrete Mathematical Structures", PHI.
4. Narsingh Deo, "Graph Theory With Application to Engineering and Computer Science", PHI
5. Trembly J.P. & Manohar P., "Discrete Mathematical Structures with Applications to Computer Science", McGraw Hill..

MSCCS-205: Computer Networks

UNIT-I

Use of communication and IT , Communication Mode- Simplex, Half Duplex, Full Duplex, Communication Channels - Twisted, Coaxial, Fiber Optic, Serial and Parallel Communication, Types of Network - LAN, WAN, MAN ,Internet etc., Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies, World Wide Web Internet Services, Analog & Digital Signal.

UNIT-II

Base Band , Broad Band, Multiplexer FDM, TDM, Modulation AM, FM, PM, Transmission Media ,Modem. OSI Reference Model , Switching Technique, Message Switching, Circuit Switching, Packet Switching, Virtual Circuit, , IEEE Standards, 802.3, 802.4, 802.5.

UNIT-III

Fast Ethernet, FDDI Token Ring, Wireless LAN, Inter-Networking Devices, Bridge, Routers Gateways, Repeater, Rooting Algorithms, Distance Vector Routing, Shortest Path Routing, Broadcast Routing, Multicast Routing, TCP/IP Protocol, IPV4 Addressing, Congestion Control, Traffic Shaping.

UNIT-IV

Comparison Between OSI and TCP/IP Models, TELNET, FTP, SMTP, MINE, UDP, URL (Uniform Resource Locater) HTTP , ISDN Channel, ISDN Services, Base Band ISDN, Broadband ISDN.

UNIT-V

Network Security : Network Security Issues, Firewalls – Need and Features of Firewalls, Types of Firewall Technology- Network Level and Application Level, IP Packets Filter Screening Routers, Limitations of Firewalls.

TEXT & REFERENCE BOOKS :

• *COMPUTER NETWORKING BY ANDREWS TANANBAUM*
• *UNDERSTANDING DATA COMMUNICATION OF NETWORKING BY WILLIAM A SHAY*
• *COMMUNICATION AND NETWORK BY LEWIS MACHENZIE*
• *DATA COMMUNICATION BY PRAKASH C GPTA*
• *DATA AND COMPUTER COMMUNICATION: BY WILLIAM STALLINGS*

MSCCS-206: Computer Graphics

UNIT-I

Introduction: Elements of graphics workstation. Video Display Devices.Raster Scan Systems. Random Scan systems. Input devices. Graphics Software Coordinate Representations, Fundamental Problems in Geometry.

UNIT-II

Algorithms: Line drawing algorithms- DDA Algorithm. Bresenham's Line Algorithm. Frame buffers. Circle and Eclipse generating algorithms. Midpoint Circle Algorithm. Sean-line polygon fill algorithm. Inside-Outside tests. Sean- Line fill of curved Boundary Areas. Boundary fill Algorithm. Flood fill Algorithm. Character generation. Attributes of lines, curves, filling, characters. etc.

UNIT-III

Graphics Primitives: Primitive Operations, The display file interpreter-Normalized Device Coordinates. Display- File structure. Display – file algorithm. Display control and Polygons- polygon representation. Attributes of output primitives: Line attributes - Line type. Line width. Pen and Brush options. Line Color. Color and gray scale levels. Color-tables

UNIT-IV

Gray scale. Area- Fill Attributes- Fill styles. Pattern fill. Soft fill. Character Attributes. Text attributes. Geometric Transformations: Matrices. Scaling Transformations. Sin and Cos Rotation. Homogeneous Co-ordinates and Translation. Co-ordinate Translations. Rotation about an arbitrary point. Inverse Transformations, Transformations Routines.

2-D Viewing- The viewing pipeline. Viewing co-ordinate, Reference Frame. Windows to view ports . co-ordinate transformation 2-D Viewing functions. Clipping operations point clipping. Line clipping. Cohen- Sutherland. Line Clipping. Polygon clipping. Sutherland Hodge man clipping.

UNIT-V

3-D concepts. Three dimensional Display Methods Parallel projection. Perspective projection. Visible line and surface identification. Surface rendering. Three Dimensional Object representations. Bezier curves and surfaces. B-Spline curves and surfaces. Visibility , Image and object precision Z- buffer algorithm. Floating horizons. Computer Animation: Design of Animation Sequences. General Computer Animation Functions-Raster Animations. Key Frame Systems. Morphing Simulating Accelerations. Motion Specifications. Kinematics and Dynamics.

Text/References:

1. J. Foley, A. Van Dam, S. Feiner, J. Hughes: Computer Graphics- Principles and Practice, Pearson
2. Hearn and Baker: Computer Graphics, PHI.

MSCCS-207: Software Engineering

UNIT - I

Software : Software Characteristics and Applications, Software Engineering - A Layered Technology, Software Process Models - Linear Sequential Model, Prototype & RAD Model, Incremental Model and Spiral Model. Project Metrics : Software Measurement–Size Oriented, Function Oriented Metrics, Extended Function Point Metrics.

UNIT - II

Software Project Planning: Objectives, Decomposition Techniques, and Empirical Estimation Models. Analysis Concept and Principles: Requirement Analysis, Analysis Principles.

UNIT – III

Design Concepts and Principles: Design Process, Design Concepts, Design Principles, Effective Modular Design, Human Computer Interface Design, Interface Design Guidelines.

UNIT - IV

S/W Quality Assurance : Quality Concepts, Reliability S/W Testing Models : S/W Testing Fundamentals, White and Black Box Testing, Basic Path Testing, Testing Strategies : Strategic Approach to S/W Testing, Unit Testing, Integration Testing, Validation Testing, System Testing,

UNIT - V

S/W Reuse : Reuse Process, Classification and Retrieving Components, Economics of S/W Reuse ,CASE : Introducing to CASE, Taxonomy of Case Tools,

TEXT & REFERENCE BOOKS :

- *SOFTWARE ENGINEERING BY R.S.PRESSMAN*
- *AN INTEGRATED APPROACH TO SOFTWARE ENGINEERING BY PANKAJ JALOTE*

MSCCS-208: ASP.NET through C#

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 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 and Reflection.

UNIT III

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.

UNIT IV

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.

UNIT-V

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

TEXT & REFERENCE BOOKS:

• *ASP.NET 3.5 BLACK BOOK (COVERS C# AND VB 2008 CODES) - DREAMTECH PUBLICATION*
• *THE COMPLETE REFERENCE ASP.NET BY MATHEW MACDONALD - TMH*
• *PROFESSIONAL ASP.NET- WROX PUBLICATION*
• *INTRODUCTION TO .NET FRAMEWORK-WORX PUBLICATION*

MSCCS-209: Server Administration with Linux & Windows

UNIT – I

Linux introduction and file system - Basic Features, Different flavors of Linux. 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, pwd, file, more, less, creating and viewing files using cat, file comparisons – cmp & comm, View files, disk related commands, checking disk free spaces. Partitioning the Hard drive for Linux, Installing the Linux system, System startup and shut-down process.

UNIT–II

Essential linux commands Understanding shells, Processes in linux - process fundamentals, connecting processes with pipes, Redirecting input output, manual help, Background processing, managing multiple processes, changing process priority with nice, scheduling of processes at command, cron commands, kill, ps, who, sleep, Printing commands, touch, file related commands - wc, cut, dd, etc. Mathematical commands- bc, expr. Creating and editing files with vi& vim editor.

UNIT–III

System administration: Common administrative tasks, configuration 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, file security & Permissions, becoming super user using su. Getting system information with uname, host name, disk partitions & sizes, users, kernel. Backup and restore files, installing and removing packages with rpm command. KDE & Gnome graphical interfaces.

UNIT–IV

Shell programming- Basic of shell programming, Various types of shell available in Linux, comparisons between various shells, shell programming in bash, read command, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, system shell variables, shell keywords, Creating Shell programs for automate system tasks. Simple filter commands – pr, head, tail, cut, paste, sort, uniq, tr. Filter using regular expressions – grep, egrep, and sed.

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, common networking administrative tasks, configuring Ethernet, initializing Ethernet Interface, ifconfig, netstat and netconfig commands, TCP/IP network, DNS services, routing using Linux

Installation & Administration of mail server, ftp server and Apache web server.

TEXT & REFERENCE BOOKS:

• *UNIX - CONCEPTS & APPLICATIONS (THIRD ED.) - SUMITABHA DAS, T ATA MCGRAW HILL PUBLICATIONS.*
• *UNIX FOR PROGRAMMERS AND USERS (THIRD ED.) - GRAHAM GLASS & KING ABLES, PEARSON EDUCATION INDIA.(LOW PRICES EDITION).*
• *FEDORA CORE 6 BIBLE*
• *RED HAT LINUX 9 BIBLE – CRISTOPHER NEGUS, IDG BOOKS INDIA LTD.*
• *USING LINUX BY JACK T ACKETT, DAVID GUNTER, PHI, EEE EDITION*
• *LINUX INSTALLATION AND ADMINISTRATION, NICHOLAS WELLS, COURSE TECHNOLOGY (VIKAS PUBLISHING, NEW DELHI).*
• *UNIX SHELL PROGRAMMING - YASHWANT KANETKAR, BPB PUBLICATIONS,*
• *RED HAT LINUX UNLEASHED T ECHMEDIA (BPB PUBLICATIONS)*
• *LINUX NETWORKING AND SECURITY - WELLS, COURSE T ECHNOLOGY (VIKAS PUBLISHING, NEW DEIHI*