

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY

DIRECTION NO.24 OF 2012

FACULTY OF COMMERCE
COMPUTER APPLICATION BOS

DIRECTION GOVERNING THE EXAMINATION LEADING TO THE DEGREE OF MASTER OF COMPUTER MANAGEMENT (MCM)

1. There shall be FOUR examinations leading to the degree of Master of Computer Management namely :
Part-I
(1) the Master of Computer Management (MCM) Semester-I Examination,
(2) the Master of Computer Management (MCM) Semester-II Examination,
Part-II
(3) the Master of Computer Management (MCM) Semester-III Examination,
(4) the Master of Computer Management (MCM) Semester-IV Examination,
2. The duration of the Degree Course under this shall be of two academic years. The MCM Semester-I Examination at the end of the first Semester and MCM Semester-II Examination at the end of the Second Semester in First Year and the Semester III Examination at the end of the Semester-III and MCM-IV Semester Examination at the end of Semester-IV in Second Year.
3. The Examinations Specified in paragraph 2 above shall be held twice a year (Winter+Summer) at such places and on such dates as may be fixed by the University.
4. The details of the procedure for admission as well as eligibility for examination of :
(A) An applicant of the **MCM Semester – I** Examination shall have :
 - (i) Obtained a Bachelor degree of this University or an equivalent Bachelor Degree of any statutory University in any faculty
 - (ii) Prosecuted a regular course of study for not less than one Semester in any recognized institution or college affiliated to the Nagpur University where the course will be conducted.
(B) An applicant of the **MCM Semester II** Examination shall have :
Appeared MCM Semester– I Examination of this University

(C) An Applicant of MCM Semester-III Examination shall have passed MCM Semester-I and appeared in Semester-II Examination.

OR

Passed PGDCCA/Post B.Sc. Diploma in Computer Science & Application of Rashtrasant Tukadoji Maharaj Nagpur University.

(D) An applicant of MCM Semester-IV Examination shall have passed MCM Semester-I, Semester-II or equivalent Diploma and appeared in Semester-III Examination.

Admission to Semester	Candidate should have passed in following examinations	Candidate should have completed the term and filled examination form	Candidate should have passed at least 50% courses of following examinations
I Semester	Degree examination	-	-
II Semester	-	Semester – I	-
III Semester	PGDCCA /PGDCS/ Semester-I	(Not applicable for PGDCCA/ PGDCS) Semester-II	(Not applicable for PGDCCA/ PGDCS) Semester-II
IV Semester	Semester-I & II	IIIrd Semester	IIIrd Semester

5. Without prejudice to the other provisions of Ordinance No. 6 relating to the Examinations in General, the provisions of Paragraphs 5, 7, 8, 10, 26 and 31 of the said Ordinance shall apply to every collegiate candidate.
6. The fees for the examination shall be as prescribed by the Management Council from time to time and whenever any change is made in the fees prescribed for any particular examination that shall be notified through a notification for information of the examinees concerned.

7.

Semester-I

Course Code	Subjects	Paper	Teaching Scheme per weeks (hr)	End Sem Examination	Min Marks	Internal Assessment	Min Marks	Credits
Theory								
1.	Fundamental of Information Technology	I	4	80	40	20	10	4
2.	Programming in C	II	4	80	40	20	10	4
3.	Introduction to Operating Systems	III	4	80	40	20	10	4
4.	Computerized Accounting (Tally)	IV	4	80	40	20	10	4
Practical								
1.	Practical-I : Programming in C & Operating Systems	P-I	8	100	50	Nil	Nil	4
2.	Practical-II : Tally & MS-Office	P-II	8	100	50	Nil	Nil	4
Total			32	520				24

Semester-II

Course Code	Subjects	Paper	Teaching Scheme per weeks (hr)	End Sem Examination	Min Marks	Internal Assessment	Min Marks	Credits
Theory								
1.	Management Information Systems and Software Engineering	I	4	80	40	20	10	4
2.	Visual Basic Programming	II	4	80	40	20	10	4
3.	Principles & Techniques of Management	III	4	80	40	20	10	4
4.	E-Commerce and Web Designing	IV	4	80	40	20	10	4
Practical								
1.	Practical-I : Visual Basic	P-I	8	100	50	Nil	Nil	4
2.	Practical-II : HTML, JavaScript	P-II	8	100	50	Nil	Nil	4
Total			32	520				24

MCM Part-II

Semester-III

Course Code	Subjects	Paper	Teaching Scheme per weeks (hr)	End Sem Examination	Min Marks	Internal Assessment	Min Marks	Credits
Theory								
1.	Quantitative Techniques & OR	I	4	80	40	20	10	4
2.	Core Java	II	4	80	40	20	10	4
3.	DBMS and oracle	III	4	80	40	20	10	4
4.	Research Methodology & Software Product & Project Management	IV	4	80	40	20	10	4
Practical								
1.	Practical-I : Core Java	P-I	8	100	50	Nil	Nil	4
2.	Practical-II : Oracle	P-II	8	100	50	Nil	Nil	4
Total			32	520				24

Semester-IV

Course Code	Subjects	Paper	Teaching Scheme per weeks (hr)	End Sem Examination	Min Marks	Internal Assessment	Min Marks	Credits
Theory								
1.	Information Security & Cyber Laws	I	4	80	40	20	10	4
2.	PHP & My-SQL	II	4	80	40	20	10	4
3.	Electives : (i) Advanced Java (ii) OOPS & C++ (iii) ASP.Net	III	4	80	40	20	10	4
Practical								
1.	Practical-I : PHP & My-SQL	P-I	8	100	50	Nil	Nil	4
2.	Practical-II : Elective	P-II	8	100	50	Nil	Nil	4
Project								
	PROJECT	Proj	8	100	50	-----	-----	4
Total			36	540				24

8. In order to pass the examination , an examinee shall obtain not less than 50 % marks in each of the theory papers and each of the practical and the project and Internal Assessment (Sessional) separately.
9. (A) The scope of the subjects and pattern of examination shall be as indicated in syllabi.
(B) The Medium of instructions and examinations shall be in ENGLISH only.
10. Applicant for MCM Examination prosecuting regular course of study shall not be permitted to join any other course in this or any other University.

11.

ASSESSMENT

- The final total assessment of the candidates is made in terms of an Internal assessment (Sessional) and an external assessment for each course.
- For each paper, 20 marks will be based on internal assessment and 80 marks for semester end examination (external assessment), unless otherwise stated.
- The division of the 20 marks allotted to internal assessment of theory papers is on the basis of tutorial work, written test, seminars, presentations and attendance as determined by the teacher in respective subject and moderated by Head of the Institute/Principal.
- An unsuccessful examinee at any internal shall be eligible for reexamination on payment of fresh examination fee prescribed by the University as per the respective directions.
- The internal marks will be communicated to the University at the end of each semester, but before the semester end examinations. These marks will be considered for the declaration of the results.
- The record of internal marks, evaluation & result should be maintained for a period of one year by respective institute/college for verification by competent authority.
- The Maximum and Minimum marks which each subject carries in MCM Semester-I, Semester-II, Semester-III and Semester-IV Examination are as indicated in Appendices "A" and "B". respectively.
- A copy of Project work shall be submitted to college prior to commencement of Semester-IV Examination for Evaluation by Internal and External Examiner appointed as per University rules.

- Candidate shall submit his/her declaration that the Project is a result of his/her own work and the same has not been previously submitted to any examination of this University or any other University.
- The Practical Examination of each Semester will be conducted by Internal and External Examiner appointed as per University rules.
- The old course students shall be absorbed as per the absorption scheme attached.
- If an examinee failed to pass the MCM Degree within Five Successive Years from the date of his/her First Admission to particular programme he/she shall be declared as “**Not Fit for the Course**” (NFC) and he/she will not be allowed to appear further for any examination of the course.

STANDARD OF PASSING

- Every candidate must secure 50% marks in each head of passing.
 - The passing marks for external examination will thus be 40 out of 80 and for internal examination 10 out of 20 and aggregate marks taking both together will be 50 marks.
 - There shall be no internal marks in Practical and Project Examination.
11. (a) There shall be no classification of examinees successful at the MCM Semester-I, Semester-II and Semester-III Examination whereas SGPA will be notified.

*** Conversion of Marks to Grades and Calculations of SGPA (Grade Point Average) and CGPA (Cumulative Grade Point Average):** In the Credit and Grade Point System, the assessment of individual Courses in the concerned examinations will be on the basis of marks only, but the marks shall later be converted into Grades by some mechanism wherein the overall performance of the Learners can be reflected after considering the Credit Points for any given course. However, the overall evaluation shall be designated in terms of Grade. There are some abbreviations used here that need understanding of each and every parameter involved in grade computation and the evaluation mechanism. The abbreviations and formulae used are as follows:-

Abbreviations and Formulae Used

G: Grade

GP: Grade Points

C: Credits

CP: Credit Points

CG: Credits X Grades (Product of credits & Grades)

SGPA = $\frac{\sum CG}{\sum C}$: Sum of Product of Credits & Grades points / $\sum C$: Sum of Credits points

SGPA: Semester Grade Point Average shall be calculated for individual semesters. (It is also designated as GPA)

CGPA: Cumulative Grade Point Average shall be calculated for the entire Programme by considering all the semesters taken together.

After calculating the SGPA for an individual semester and the CGPA for entire programme, the value can be matched with the grade in the Grade Point table as per the Seven (07) Points Grading System and expressed as a single designated GRADE such as O, A, B, etc....

Marks	Grade	Grade Points
85 and above	O	10
75 -84	A	9
65-74	B	8
60-64	C	7
55-59	D	6
50-54	E	5
00-49	F (Fail)	0

- (b) Division at the MCM Semester-IV Examination shall be declared on the basis of the aggregate marks at the MCM Semester-I, Semester-II Semester-III and MCM Semester-IV Examination taken together and the CGPA will be calculated and notified.
- (c) Successful examinees at the MCM Semester-IV Examination shall be awarded division based on CGPA as follows :

CGPA Range	Final Grade	Equivalent Class/ Division
5.0 to 5.49	E	Pass Class
5.5 to 5.99	D	Second Division
6.0 to 6.99	C	First Division
7.0 to 7.99	B	First Division with Distinction
8.0 to 8.99	A	First Division (Excellent)
9.0 to 10	O	First Division (Outstanding)

12. Successful examinees in the MCM Semester Examination shall be awarded Distinction in each subject in which examinees obtain 75% or more marks in that subject at the respective Examination.
13. Unsuccessful examinees at the above examinations can be readmitted to the same examination on payment of a fresh fee and such other fees as may be prescribed.
14. Provisions of Direction 44 of 2001 relating to the award of Grace marks for passing an examination, securing higher division / class and for securing distinction in subject(s) and of Ordinance 10 relating to grant of Exemptions and Compartment vide Ordinance No. 45 of 1983 as amended up-to-date shall apply to the Examinations under this Direction.
15. Notwithstanding anything to the contrary in this Direction, no person shall be admitted to an examination under this Ordinance, if he/ she has already passed the same examination or an equivalent examination of any other University.

16. Examinees successful at MCM Semester-I, Semester-II , Semester-III and MCM Semester-IV Examination shall on payment of the prescribed fees receive a Degree in the prescribed form signed by the Vice-Chancellor.
17. This Scheme shall come into force from the academic session 2012-13
18. The Provisions of Ordinance No. 21 of 1994 governing the existing course for Master of Computer Management stand repealed phasically on implementation of this Direction.

APPENDIX - A
MCM Part-I
Semester-I

No.	Subjects	Paper	Max Marks	Min Marks
(A) Theory				
1.	Fundamental of Information Technology	Paper-I	80	40
2.	Programming in C	Paper-II	80	40
3.	Introduction to Operating Systems	Paper-III	80	40
4.	Computerized Accounting (Tally)	Paper-IV	80	40
(B) Practical				
1.	Practical-I : Programming in C & Operating Systems	Practical-I	100	50
2.	Practical-II : Tally & MS-Office	Practical-II	100	50

Semester-II

No.	Subjects	Paper	Max Marks	Min Marks
(A) Theory				
1.	Management Information Systems and Software Engineering	Paper-I	80	40
2.	Visual Basic Programming	Paper-II	80	40
3.	Principles & Techniques of Management	Paper-III	80	40
4.	E-Commerce and Web Designing	Paper-IV	80	40
(B) Practical				
1.	Practical-I : Visual Basic	Practical-I	100	50
2.	Practical-II : HTML, JavaScript	Practical-II	100	50

APPENDIX -B
MCM Part-II
Semester-III

No.	Subjects	Paper	Max Marks	Min Marks
(A) Theory				
1.	Quantitative Techniques & OR	Paper-I	80	40
2.	Core Java	Paper-II	80	40
3.	DBMS and oracle	Paper-III	80	40
4.	Research Methodology & Software Product & Project Management	Paper-IV	80	40
(B) Practical				
1.	Practical-I : Core Java	Practical-I	100	50
2.	Practical-II : Oracle	Practical-II	100	50

Semester-IV

No.	Subjects	Paper	Max Marks	Min Marks
(A) Theory				
1.	Information Security & Cyber Laws	Paper-I	80	40
2.	PHP & My-SQL	Paper-II	80	40
3.	Electives : (i) Advanced Java (ii) OOPS & C++ (iii) ASP.Net	Paper-III	80	40
(B) Practical				
1.	Practical-I : PHP & My-SQL	Practical-I	100	50
2.	Practical-II : Elective	Practical-II	100	50
(C) Project				
1.	PROJECT	Project	100	50

APPENDIX - C

Master of Computer Management (MCM)

QUESTION PAPER PATTERN

Total Marks : 80

- N.B.) a) Any **Five questions** should be attempted out of **Eight questions**.
b) All Questions carry equal marks. (Sixteen marks each)

Q. 1 :	Unit – I
Q. 2 :	Unit – I
Q. 3 :	Unit – II
Q. 4 :	Unit – II
Q. 5 :	Unit – III
Q. 6 :	Unit – III
Q. 7 :	Unit – IV
Q. 8 :	Unit – IV

MCM Part-I

Semester-I

Paper-I : Fundamental of Information Technology

Unit-I

Introduction to IT and Computers, Block diagram of computer, functioning of computer, generations of computer, classification of computers, characteristics, advantages & limitations of computer. Computer organization: Central processing Unit - speed of processor, computer memory: primary & secondary, types of primary memory, registers. Storage devices: floppy disk, Hard disk, magnetic tapes, optical disk (CD/ DVD), solid state storage (Flash memory cards, pen drive, etc.). Input devices: keyboard, mouse, joystick, light pen, scanners, OCR, MICR, Touch Screen, Bar code reader. Output devices: monitor, printers, classification of printers, impact & non-impact printers, dot matrix, ink jet, laser, thermal printers, plotters.

Unit-II

Hardware & software. Software and programming languages. Introduction, types of software, characteristics of good program, development of programming languages-machine language, assembly language, high level language.

Data representation: Binary, decimal, Octal, hexadecimal number systems, features & conversions. BCD, EBCDIC & ASCII codes.

UNIT – III

File Concept

Types of Files, Organization of Files, Data Processing. Factors affecting File Organisation, Data capture techniques.

Computer communication, wireless communication, need for networks, forms of data communication – analog, digital; data transmission modes, data transmission media (Twisted pair, co-axial, Fibre Optic, Microwave, Satellite communication), Bandwidth- Narrow, voice, board band, Protocols, modems, Multiplexing, Types of network-, LAN, WAN, MAN, concept of Network topology, types of topologies, advantages & limitations .Type of networking: Telephone network, ISDN, LAN, MAN, WAN AND VAN; networking topology; OSI Model.

UNIT – IV

Concept of E-Commerce and Internet

Brief history and development of internet, WWW, Internet architecture – servers, browsers, URL; service providers – shell account, TCP/IP internet services and application – E Mail, education, financial service, e-Commerce, banking, shopping, advertising, e-governance.

Application of Computer: Business and Industry, CAD/CAM graphics, Office automation, scientific application, process control, computer, computer audit, simulation.

Virus, Types of Viruses, Anti-Virus, Firewall and Anti-Spy ware Utilities

BOOKS RECOMMENDED:

1. I.T. TODAY (ENCYCLOPEDIA) BY S. JAISWAL (TEST BOOK)
2. COMPUTER TODAY BY DONALD SENDERS
3. Computer Applications in Management – Usha Dahiya, Sapna Nagpal (Taxmann's)
4. Information Technology - Dr. Sushila Madan (Taxmann's)
5. UNDERSTANDING COMPUTER BY DINESHKUMAR
6. COMPUTER FUNDAMENTALS BY P. K. SINHA
7. OFFICE AUTOMATION BY K.K. BAJAJ (MACMILAN)
8. BUSINESS ON THE NET AN INTRODUCTION TO THE WHATS AND HOWS OF E-COMMERCE BY K. N. AGARWALA & OTHERS (MACMILAN)
9. INFORMATION TECHNOLOGY BY S.B. KISHOR (DASGANU PRAKASHAN)
10. Fundamentals of Computers – ITL Education Solutions Ltd. (Pearson)

Paper-II : Programming in C

UNIT – I

Programming Logic : Problem Analysis, Process Analysis, Conceptual Development of solution.
Development Tools : Algorithm & Flowchart Translator : Interpreter, Compiler Introduction to C, C-Character Set and Keyboards, Constants and Variables, Data types, Type Casting, Type Modification,
Operators and Expressions – Arithmetic, Relational, Logical Assignment, Ternary, Bit wise and Increment and Decrement Operator
Input and Output statements in C.

UNIT – II

Storage Class: Automatic, static, External.
Control Statement
If-else, go-to, while, do- while and for loop statements, Switch and Use of Break and Continue statements

UNIT – III

Arrays: Declaration, Referring Individual elements, Entering data in to an array, Reading data from array, Array initialization, Printing of Array, Searching. Sorting and merging of array, String Manipulation using string library functions.
Function: Arithmetic and String Library Function, User defined functions, Arguments and local variables, Returning function result, use of void, functions without value and reference and function with call by value and call by reference, recursion.
Pointer: Introduction to pointer and function, pointer and structure, Pointer and Array, Call by value and call by Reference, Pointer and string
Dynamic memory allocation: Sizeof (), malloc ()

UNIT – IV

Structure: Declaration Structure, Initializing Structure, Structure variables, accessing structure elements, Arrays of Structure, Structures containing Arrays.
Unions: Concept and applications. Enum
Files: Concept of file, Modes of files, Open and Close, Creation and reading of files, Character input/output, getchar, putchar, getch, putch, string input and output: sscanf, sprintf, gets, puts. File input/output : fprintf, fscanf, getc, putc, Block read, Block read/write: fread, fwrite.
File inclusion and command line argument.

BOOK RECOMMENDED:

1. COMPUTER PROGRAMMING IN C BY V RAJARAMAN (PHI)
2. C-PROGRAMMING BY S.K. SHRIVASTAVA
3. PROGRAMMING IN 'C' BY BALAGURUSWAMI
4. EXPLORING 'C' BY KANETKAR
5. LET US 'C' BY KANETKAR
6. PROGRAMMING USING C BY DR.S.B. KISHOR (DASGANU PRAKASHAN)

Paper-III : Introduction to Operating Systems

UNIT – I

Introduction to Operating System, definition, need, functions, types of operating system, simple batch system, multiprogramming, time sharing system, parallel system, distributed systems, real-time system, multiprocessing, on-line and off line processing, multitasking, virtual memory management.

UNIT – II

Introduction to Disk Operating System (DOS)

- File types, Directory Structure
- Booting - Warm and Cold Booting
- Types of DOS commands (Internal and External)
- Introduction of Autoexe and Config files.
- Directory commands: DIR, MD, RD, TREE, PATH, SUBST ETC.
- Wild card Definitions
- Commands related to file management: COPY, DEL, ERASE, REN, ATTRIB, XCOPY, BACKUP and RESTORE .
- General commands: TYPE DATE, TIME, PROMPT etc.
- batch commands, wild card characters & its use.

Unit – III

Introduction to Unix overview

- File systems and structure of directories and file
- File Oriented Commands – Cat, op, ln mv, rm etc.
- File Permissions
- Directory Oriented commands – ls, mkdir, rmdir, cd, pwd etc.
- Inter user connection commands – write, mail, used, at, wall etc.
- Common commands – skill, date, wo, sleep, who ps.
- Unix Utility Commands – grep, pr, cut, paste, sort, lp shutdown, halt, sys, tar, find etc.
- Basics of shell scripts
- Writing shell scripts, running scripts, using variables, controlling the flow of statement
- Introduction of Linux.

UNIT – IV

Introduction to windows Operating System, advantages of windows operating system, using different windows applications simultaneously, operating with windows, GUI, use of help features, starting an application, essential accessories, creating shortcuts, windows explorer, control panel, my computer, my documents, recycle bin, finding folders and files, changing system settings, system tools, use of run command, setting peripherals, drivers, editing graphics in windows, new features in windows XP/Vista versions.

BOOK RECOMMENDED :

1. MODERN OPERATING SYSTEMS 2nd EDITION BY TANENBAUM (PHI)
2. THE UNIX PROGRAMMING ENVIRONMENT BY KERNIGHAN & PIKE (PHI)
3. DOS/UNIX & WINDOWS: I.T. TODAY (ENCYCLOPEDIA) BY S. JAISWAL
4. OPERATING SYSTEM CONCEPT: SILLBERSCHATZ GALVIN
5. MSDOS; MANUAL
6. USING LINUX (FIFTH EDITION) : TACKETT, BURNETT (PHI)

Paper-IV : Computerized Accounting (Tally)

Unit-I

Introduction to Accounting, Advantages of accounting, Books of accounts, Classification of Accounts, Financial Statements, Inventory management, Computerized Accounting, Need of Computerized Accounting, Accounts Organization, Accounts group, Loans Liabilities, Assets and Budget.

Unit-II

Accounting Software's Introduction to tally Software, Features of Tally Screen, Company information, Creating new Company, Gateway, Selection of Company, selection of Options, Buttons at Gateway, Working with multiple Companies, Company Features, Configuration- General, Numeric Symbols, Voucher Entry, Creation of Voucher Screen, invoice Order Entry, Printing.

Unit-III

Accounts info menu, Account Groups- create new group, creation of primary group. Normal and advance information, Ledger Accounts, cost categories, Cost Centers. Creation of Budget, Types of budget. Voucher- Voucher Entry, creation of Vouchers Screen, types of Voucher, Selection of Voucher types, Post Dated Voucher, printing of Vouchers, Cheque Printing, advance Features of account Voucher.

Unit-IV

Inventory info, Features of Inventory info. Configure- Inventory Info, balance Sheet, Audit Trail, Ratio Analysis. Display-Accounting Report Display, Inventory report Display, and MIS Report Display. Printing Reports, Export, Export of Data. Maintenance- Bank Reconciliation, House Keeping, Data Maintenance. Security- Users and Password, Security Controls, Types of Security, Creation New Security Levels and Tally Audit.

Practical:

Tally Software – All Accounting Problems Viz. Balance sheet, Profit & Loss, Cash Book, Loans, Cost Accounting, Vouchers, Budget, Sales and Purchase, Assets & Liabilities, Inventory Management, Financial Statements, Books of accounts, Ledger, etc.

Books Recommended:

1. Accounting with Tally : K.K. Nadhani, BPB Publication
2. Tally Tutorial : K.K. Nadhani and A.K. Nadhani, BPB Publication.
3. Advances Accounts Vol-I: M.C. Shukla, T.S.Grewal and S.G.Gupta, S.Chand & Company, Delhi.
4. Accounting Principles: Anthony R.N. and J.S. Richard, Irwin Inc.
5. Advanced Accountancy By P.C. Tulsian, Tata McGraw HILL Publication.
6. Tally By S.B. Kishor (Dasganu)
7. Fundamentals of Computers – IITL Education Solutions Ltd. (Pearson)

Practicals :

Practical-I : Programming in C (Turbo C/ANSI C) and Operating Systems (DOS, Unix, Linux)
Practical-II : Tally and MS-Office

MCM Part-I

Semester-II

Paper-I : Management Information Systems and Software Engineering

UNIT – I :

Systems Concepts - Systems approach, characteristics, Types of Systems; Elements – input, Output, environment, Boundary Interface, Feedback & Control; Systems Life Cycle; MIS, TPS, OAS DSS. KWS, Value of information, information life cycle, data Vs information, Components of MIS, characteristics of MIS.

UNIT – II :

System Analysis : System development life cycle, Information Gathering(Sources, Methods, interviews, questionnaires, observation, document analysis etc.) ,Feasibility study, Analysis(PARTS model,), Design, Implementation, Planning and control for system success. Tools of structure analysis (Data flow diagram, data dictionary, decision tree, decision table, CASE tools)

UNIT – III :

System Design – interpreting the information:Modeling the required system, E-R diagrams, ELHs, ECDs, user view of processing, modeling input output data.

Input and Output design, form design, process design, Database design: Objective of data base, logical and physical views of data ,The role of data base administrator, Hardware and Software selection

System testing and Implementation : System testing, quality assurance goal s in the system life cycle, Role of data processing auditor. Implementation and software maintenance: methods of change over, transition and conversion change.

Security, Disaster / Recovery, and Ethics in System Development System security, control measures, disaster recovery, system development :ethics codes and standards of behaviour.

UNIT – IV :

INTRODUCTION TO SOFTWARE ENGINEERING

Introduction; Definitions; Size Factors: Total Efforts Devoted to Software, Distribution of Effort, Project Size Categories, Quality and Productivity Factors, Managerial Issues

PLANNING A SOFTWARE PROJECT

Introduction; Defining the problem - Goals and Requirement; Developing a Solution Strategy; Planning the development Process;

Different Approaches to Software Development

Waterfall Model , Spiral Model, Prototyping, RAD, Object Oriented, 4GL

Introduction to Computer Aided Software Engineering (CASE) tools, Concept of Reverse Engineering.

BOOK RECOMMENDED :

1. SYSTEM ANALYSIS AND DESIGN BY E. AWAD (GALGOTIA)
2. MANAGEMENT INFORMATION SYSTEMS BY S. SADAGOPAN (PHI)
3. MANAGING WITH INFORMATION 4th EDITION BY KANTER (PHI)
4. SYSTEMS ANALYSIS AND DESIGN BY EDWARD (TMH)
5. Computer Based Information System - Dr. Sushila Madan (Taxmann's)
6. SYSTEM ANALYSIS AND DESIGN BY DON YEATS (MCMILLAN)
7. MANAGEMENT INFORMATION SYSTEM : GOYAL
8. MANAGEMENT INFORMATION SYSTEM : JAWADEKAR (TMH)
9. Software Engineering Practitioner's Approach by Roger Pressman
10. MIS AND SYSTEM ANALYSIS By Dr. S.B. Kishor (Dasganu)

Paper-II : Visual Basic Programming

Unit –I

Introduction to Visual Basic, Event driven programming, **Programming constructs** - Variables, Types of Variables, Data Types, Scope of Variables, Constants, system defined functions, Operators (Precedence and Associativity), Creating User Interface, **VB Controls** (Label, Text box, Command button, Frame, Check box, Option button, List box, Combo box, Timer, Drive list box, Directory list box, File list box, Horizontal and vertical scroll bars, Image, Picture box, Shape, Line, Data, OLE container), **Microsoft windows common controls** (Tab Strip, Tool bar, Status Bar, Progress Bar, Tree View, List View, Image List, Slider, Date Picker, Month View), adding controls to a form, adding controls at run time,

Unit –II

Working with Procedure, Function and Modules (Form, Class, Standard Modules)
Scope of Procedures, Calling Procedures, Calling Functions, Passing Arguments,
Control Structures : If-Then, If-Then-Else, Select Case, **Loops Structures** : Do-While, While - Wend, For-Next, For-Each, With-End With.
Arrays : Declaring an Array, Types of Array (Fixed arrays, Single-dimensional arrays, Multidimensional arrays, Dynamic arrays), Control Array.
Menus : Creating Menus, Adding Menu Items, Adding Code for the Menus, Modifying menus at run time, Creating Pop-Up Menus.

Unit – III

Database Programming in Visual Basic

Use of data control, creating database using Visual data manager, validating data, data bound controls.

Comparative study of Data Access Techniques : DAO, RDO, ADO, ODBC

Data access object :

DAO Architecture , Database connectivity through data access object. Types of recordset , setting properties and record editing & updating , searching records.

UNIT IV :

Active X data object

ADO architecture, setting data source through Active X Data objects. Use of ADO control , connecting ADODC to bound controls. Use of different data bound Controls. Editing , Updating & searching through ADO.

Data Reports, Data Environment designer adding connection & commands Data report controls creating & printing reports.

Error handling : Types of errors, Debugging , tools for debugging, break mode,break points, watch window, immediate window.

Handling runtime errors.

BOOKS RECOMMENDED :

1. PAUL SHERIFF TEACHES VB-6 BY SHERIFF (PHI)
2. VISUAL BASIC: PETER WRITES
3. LEARN VB 6 BY HALVARSON (MICROSOFT/PHI)
4. VB PROGRAMMING FOR A ABSOLUTE BEGINNER – MICHAEL VINE (PHI)
5. VISUAL BASIC: SUPPER BIBLE TECH MEDIA
6. VISUAL BASIC: STEPHEN SOLOSKY (PHI)
7. COMPLETE REFERENCE VISUAL BASIC – TATA MCGROW HILL
8. FRONT END DEVELOPMENT USING VISUAL BASIC BY DR. S.B.KISHOR(DASGANU)

Paper-III : Principles and Techniques of Management

Unit –I

MANAGEMENT:- Concept, , science or art, levels and decisions made. Planning concept, nature, steps, and characteristics of good plan. Decision Making : concept types of decision, steps, importance, process.

ORGANIZATION :- Concept, importance, types of organization, departmentation, authority and responsibility, delegation, span of control, centralization vs. decentralization. Control: Meaning, Need, types, process, steps in establishing control system.

UNIT – II:

MARKETING MANAGEMENT:

Meaning, Nature, Scope of marketing process, 7Ps of marketing; Segmentation – Concept, need and methods. Marketing Research – Meaning Scope, methodology, Marketing Plan –Formulation, strategic marketing process – GE, BCG, SBU etc. models

UNIT – III:

HUMAN RESOURCE MANAGEMENT:

Nature, concept, significance of human factor, human resource planning – recruitment and selection, Job evaluation: concept objectives, importance, procedures; Merit rating and performance appraisal: Need, methods; Record keeping: Service records, attendance, absenteeism; HRA.

UNIT – IV:

BUSINESS COMMUNICATION:

Process, Objectives, Significance, Types, Barriers to effective communication, Listening and interpersonal skills. Coordination : Concept importance, need, principles, methods of effective coordination. Negotiations: Bargaining, Compromise, Lose- lose and win-win orientation, elements of negotiation. Making presentations, writing letter. Report Writing: Elements of report, framework, structure of report, types; Steps in writing report.

BOOK RECOMMENDED:

1. PRINCIPLES OF MANAGEMENT BY V.P. MICHEL
2. PRINCIPLES OF MANAGEMENT & ADMINISTRATION BY CHANDRA BOSE (PHI)
3. PRINCIPLES OF MANAGEMENT BY TRIPATHY REDDY
4. DEVELOPING OF COMMUNICATION SKILLS – MOHAN (MCMILLAN)
5. MARKETING MANAGEMENT BY PHILIP KOTLAR
6. PERSONNEL MANAGEMENT BY C.B. MEMORIA.
7. BUSINESS COMMUNICATION BY ASHA KAUL (PHI)
8. PRINCIPLES OF BUSINESS MANAGEMENT BY DR.PRATIBHA SIRIYA (SAI JYOTI PUBLICATION)

Paper-IV : E-Commerce and Web Designing

Unit-I

Introduction, Definition, Benefits of E-Commerce, Impact of E-Commerce on business models, Traditional Commerce Vs E-Commerce, Advantages and Disadvantages of E-Commerce, Electronic Commerce and the Trade Cycle. **Electronic Market** : Usage, Advantages and Disadvantages and its future. **Electronic Data Interchange (EDI)** : Introduction, Benefits, Trade Cycle and Example. **Internet Commerce** : Introduction, Internet Trade Cycle and example, **Internet Security** : Secure Transaction, Privacy issues, computer crimes and its type, **Security Issues** : Security threats like damage to data, loss of data and unauthorized use of data, **Security Procedure** : Firewall, Encryption, Password, Access Control List, Digital Certificate.

UNIT – II

HTML

Introduction to HTML, creating HTML documents, Creating web pages with HTML Tags : HTML, Head, Title, Body H1, H2, H3, H4, Paragraph tags, Alignment, Formatting, Font size, attributes, list, Character formatting : Logical verses physical style, logical and physical style. Changing the colors of the fonts. Multiple tags.

Linking :Relative pathnames verses absolute pathnames, URLs, Link to specific sections, Links between sections of different documents, Links to specific sections within the current document, Mailto.

UNIT – III

Inline Images : Image size attributes, inline images, alternate text images, Images a Hyperlink, Image map navigation

Frames and Tables : Table row and columns, creating simple tables, Spanning row and columns with HTML tables, spanning rows and columns. Table alignment properties.

Embedding Multimedia : Introduction, Embedding Multimedia, Inserting sound/audio formats, video file formats.

Form designs, Form Controls, Text controls, password fields, radio buttons, checkboxes, reset and submit buttons, form control selection, option processing and textarea.

Connectivity with Oracle or Access.

UNIT – IV

Scripting Language , Types of Scripting languages, JAVA SCRIPT – Introduction, Advantages, Disadvantages, Working of JavaScript, Structure of JavaScript program, Variable, Data types, Operators & Expression, Decision Making- if—else, switch, loops(for, for...in, while, do...while), break & continue, , Arrays – Types, methods

Functions – Types, declaration, passing parameter, return statement, recursion

Dialog box in JS – Alert, Prompt, Confirm

Events in JS, Error Handling in JS, JS Objects – Object Hierarchy, Native objects, Math Objects, Date, Boolean Object, Navigator, Window, Frame, History, location, Document, Anchor, Applet, Area, image, link, Form object,

Validation in JS, Creating Floating toolbar,

BOOKS RECOMMENDED :

1. Electronic Commerce by Greenstein and Feinman (TMH)
2. E-Commerce by Bhushan Dean – S. Chand
3. Web Publishing by Monic D'souza and J D'souza
4. Complete HTML by BPB
5. HTML – 4 Unleashed (SAMS)
6. Dynamic HTML by O'RELLY (SPD)
7. Java Script Programming for the absolute beginner by Harris (PHI)
8. Java Scripts unleashed (SAMS)

Practicals :

Practical-I : Visual Basic

Practical-II : HTML, JavaScript

MCM Part-II

Semester-III

Paper-I : Quantitative Techniques and Operation Research

Unit – I

Quantitative techniques – need, importance, limitations, management decisions and quantitative techniques; Measures of central tendency (Mean, mode, median) measures of dispersion (range, mean deviation, standard deviation and coefficient of variation)

Unit – II

Decision Theory: certainty, uncertainty, risk, EMV criteria, Decision tree: concept and application. Forecasting techniques: Need, importance, methods-Moving averages, correlation and – simple correlation and rank correlation and regression analysis – regression line and Time series analysis.

Unit – III

Linear Programming: Introduction, requirement, applications, formulation, solution by graphical method only. Allocation Models: Transportation and Assignment problems

Unit – IV

Project Management introduction, network analysis, PERT/CPM calculation-foals and slacks, time-cost trade off & crashing, Resource leveling and smoothing – concept and methodology.

Inventory Control: concept, selective inventory densification, cost elements, inventory process and graphical representation, EOQ model; Simulation: concept, process, use of random number, Use of readymade packages like

BOOK RECOMMENDED :

1. OPERATION RESEARCH PROBLEMS & SOLUTIONS BY J. K. SHARMA (MACMILAN)
2. STATISTICS FOR MANAGEMENT BY LEVIN & RUBIN (PHI)
3. OPERATION RESEARCH BY V.K. KAPOOR
4. THEORY & PROBLEMS IN QUANTITATIVE TECH. IN MANAGEMENT BY N. D. VOHRA (TMH)
5. OPERATIONS RESEARCH BY CHAWLA, GUPTA AND SHARMA
6. BUSINESS STATITICS BY CHANDAN, SINGH & KHANNA (VIKAS PUBLICATION)
7. STATISTICAL METHODS BY S.P. GUPTA

Paper-II : Core Java

Unit – I

Introduction : Java and JVM , Java Architecture and its components , Features of Java , Application of Java programming , Java program structure & Compilation , **Java tokens** : Character set , Keywords , Variables , Literals , White Spaces , Separators , Constants , Identifiers , Keywords , Comments , Data types , Operators and Expressions , Type Casting **Decision making statements** -Branching and Looping statements ,

Introduction of classes , objects and methods - Defining class , Adding variables , Adding methods, Creating objects , Constructors THIS key word, Garbage collection , finalize() method , accessing class members , vectors and wrapper classes , inheritance , final variables and methods , final classes , finalizer methods , abstract methods and classes , visibility control – public access , friendly access , protected access, private protected access , String class , Command-Line arguments

Unit – II

Arrays : One dimensional & two dimensional array , Creation , Declaration , Initialization , Length , Variable size arrays , String arrays , String Methods , String buffer class & Vectors

Interfaces and Packages : Introduction , Defining interfaces , Extending interfaces , Implementing interfaces , Accessing interface variables , Java API packages , Using system packages , Naming conventions , Creating packages , Accessing packages , Using a package , Adding a class to a package , Hiding classes

Unit – III

Multithreaded Programming : Introduction , Creating threads , Run() method , New thread , Thread class , Extending the thread class , Stopping and Blocking a thread , Life cycle of a thread- newborn , runnable , running , blocked , dead , waiting sleeping , suspended , blocked , Using thread methods , Thread exceptions , Thread priority , Synchronization , Implementing the 'Runnable ' interface

Exception handling : Types of Errors , Exceptions , Syntax of Exception handling code , Multi catch statements , Uncaught Exceptions ,Nested try statements , throw , throws , finally , Java's built-in Exceptions , Crating your own exception subclasses , Exceptions for debugging

Unit – IV

Applet : Introduction , How applet differ form application , Applet life cycle , Creating an Applet , Applet tag , Adding applet to HTML file , Running the applet , Passing parameters to applet , Use of java.awt graphics class and its various methods in applet Control loops in applets

Graphics : Graphics programming - Drawing and filling (lines ,rectangles , circles , ellipses , arcs, polygons , bar charts) , Creating font objects

Streams : Concept of Streams , Difference between Character streams and Byte streams , Stream classes , Input / Output files – creation , reading and writing files

BOOKS RECOMMENDED

1. PROGRAMMING WITH JAVA BY E BALAGURUSAMY
2. JAVA DEVELOPERS , EVANS , VERBURG , DREAMTECH PRESS
3. JAVA PROGRAMMING ADVANCED TOPICS , JOE WIGGLESWORTH AND PAULA LUMBY , COURSE TECHNOLOGY (THOMSON LEARNING)
4. JAVA 2 – THE COMPLETE REFERENCE 3/E , PATRICK NAUGHTON AND HERBERT SCHILDT TMH

Paper-III : DBMS and Oracle

UNIT – I:

Database environment, Data processing, Traditional and DBMS environment, Database system, Introduction to DBMS, Database Approach - Objectives, benefits, characteristics, Advantages of DBMS, data abstraction, data models, logical model physical models, E-R relationship model, relational model, network model, hierarchical model, DBMS Languages, Database Administrator.

Relational data base management system (RDBMS)

Structure of relational database, relational algebra tuple relational calculus, domain relational calculus.

Relational database design : normalization using functional dependencies.

Relational commercial languages : SQL, query by example, QUEL

UNIT – II:

ORACLE

Introduction to Oracle as RDBMS, Oracle as a multi-user system, logging in and logging out of Oracle, database administrator (DBA) and its role, creation of user and passwords.

SQL ; STRUCTURED QUERY LANGUAGE

History and Standardization of SQL, benefits of SQL, elements of SQL, languages :

Database objects, reserve words, key words, literals, variables, data type : number, date,

long, raw and long raw, var, varchar data types.

COMMANDS TO BE COVERED

1. Create table, drop table, modify, alter table
2. Data manipulating commands - Insert, update, delete, select
3. Aggregate function - Max, min, sum, avg, count
4. Other clauses - Group by, order by, having union, intersect, minus
5. Predicates - Comparison like, Between-null, in, Exists

UNIT – III :

1. subqueries
2. views
3. joins
4. simple reports commands
5. PL/Sql programming : introduction to pl/sql, variable, initializing variables dynamics data types, control and loop statements, loops and labels, PL/SQL cursors.

UNIT – IV:

EXCEPTIONS MANAGEMENT

User defined, predefined exceptions; subprograms and packages- procedures, functions, package specification, body, calling sub programs, advantages of packages, cursers in packages.

DATABASE TRIGGERS & BUILT IN PACKAGES

Database triggers-syntax, parts, statement, body, restriction, types

Built in packages – DBMS standard, DBMS – OUTPUT; Collection, member functions and procedures, PL/SQL table and records, declaration, referring, maintaining row count, insertions, deletions, nested tables, varying, arrays, initialization, declaration, varrays, member functions and procedures

BOOKS RECOMMENDED

1. DBMS: BY KORTH AND SUDARSHAN
2. DBMS : BY DESAI
3. DATABASE MANAGEMENT SYSTEM BY R. PANNEERSELVAM (PHI)
4. ORACLE : I.T. TODAY (ENCYCLOPEDIA)
5. ORACLE : ORACLE PRESS
6. ORACLE PL/SQL : PL/SQL IN 21 DAYS (TECHMEDIA) SAMS

Paper-IV : Research Methodology & Software Product & Project Management

Unit-I :

Basic research methodology: Objectives and Motivation in Research - Types of Research - Approaches and Significance of Research - Research Methodology versus Research Methods;

Finding a Research Advisor/Guide, What to Look for in a Potential Research Advisor/Guide, How to Find an Advisor/Guide, The Advisor-Advisee Relationship;

Unit-II:

Research Process:

Finding a Topic and Beginning Research, Getting Research Ideas, Getting Exposed to Research, Directed Study; Formulating the Research Problem: Develop the Nucleus of an Idea, Extensive Literature Survey:A Trap to Avoid, Choosing an Idea, Stay Active - Measure of Good Research - Common Problems for Researchers

Unit-III:

Research Design:

Overview of the Theory of Science and history of scientific research - Overview of Research Methodology for Engineering Research - Science versus Engineering - Distinct perspectives of goals Research methodology: Formulating the Research Problem-Research Design - Evolution of Computing Research

Unit-IV:

The Software Process :

Client, Developer, and User- Requirements Phase: Specification Phase - Design Phase- Implementation phase- Integration phase - Maintenance Phase- Retirement - Problems with Software Production - Essence and Accidents - Improving the Software Process - Capability Maturity Models - Other Software Process Improvement Initiatives - Costs and Benefits of Software Process Improvement.

Software Life Cycle Models: Build and Fix Model - Water Fall Model - Rapid Prototyping Model - Increment Model - Extreme Programming - Synchronize - and -Stabilize Models - Spiral Model - Object Oriented Life Cycle Model - Comparison of life cycle model.

Books Recommended:

1. Research Methodology – Dr. C. R. Kothari – New Age International (P Ltd) Publishers.
2. Research Methodology – Dr. J. Y. Khan – A. T. H. Publishing Corporation
3. Research Methodology – Dr. Prasant Sarangi (Taxmann's)
4. Researching Information Systems and Computing – Briony J Oates (SAGE Publications)
5. Elias M Awad – System Analysis and Design –Galgotia Publications
6. V. K. Khanna - System Analysis and Design –Khanna Book Publications Delhi
7. Software Engineering Practionor's Approach – Rogger S Pressman - McGraw-Hill

Practicals :

Practical-I : Core JAVA

Practical-II : Oracle

Semester-IV

Paper-I : Information Security and Cyber Law

Unit-I :

- Information Security : Overview, need for information security, objectives of Information security.
- Global information systems and their evolution, basics of information systems, role of the Internet and the World Wide Web
- Understanding about the threats to information systems security Building blocks of InfoSec, How Organizations manage security of their information systems Information security risk analysis fundamentals
- Importance of physical security and biometrics controls for protecting information systems assets
- Security considerations for the mobile work force
- Network security perspectives, networking and digital communications (overview only), security of wireless networks.

Unit-II :

- Cryptographic techniques and Encryption, Intrusion Detection Systems and Firewalls, security of virtual private networks
- Security issues in application development with emphasis on integration of enterprise applications, database security, operating security and security of electronic mailing systems
- Security models and frameworks and standards through introduction to the ISO 27001, SSE-CMM (systems security engineering – capability maturity model), COBIT (Control Objectives for Information and related technologies) and the Sarbanes-Oxley Act (SOX) and SAS 70 (statement on auditing standards)
- Privacy Fundamentals, business practices' impact on data privacy, technological impact on data privacy, privacy issues in web services and applications based on web services
- Information security best practices – staffing, audits, disaster recovery planning and business continuity planning and asset management
- Ethical issues and intellectual property concerns for information security professionals – copy right, data protection etc. matters

Unit-III :

- Introduction of IT Act 2000, main features of IT Act 2000, Digital Signature
- Access Control : Operating system Access Controls, Group and Roles, Access Control lists, Unix Operating System Security, Windows NT, Capabilities, Added Features in Windows 2000, Granularity, Sandboxing and Proof-carrying code, Hardware protection, Other technical Attacks.
- Cryptography & PKI : Symmetric Cryptography, Asymmetric Cryptography, Keys, Hash Functions, Digital Signatures.
- Distributed Systems - Concurrency, Fault Tolerance and Fault Recovery, Naming.

Unit-IV

- Multilevel and Multilateral Security : Multilevel Security, Multilateral Security
- Electronic Banking –Banking and Bookkeeping.
- Monitoring Systems –Introduction, Alarms, Prepayment Masters.
- Biometrics : Physiological biometric techniques, behavioral biometric techniques, New biometric techniques, biometric systems.
- Incident Response : Incident Response, Prerequisites to planning an IRT.
- Network attack and Defence : Most Common Attacks, Scripts Kiddies and Packaged Defence.
- Management Issues : Organisational Issues,
- Protecting E-commerce Systems – Introduction
- Hacking – Introduction

Books Recommended :

1. Information Systems Security Management - Nina S. Godbole (Wiley India Pvt. Ltd.)
2. Security Engineering - Ross Anderson
3. Information Security Management Handbook - Harold Tpton & Micki Krause (Auerbach Publications)
4. Network Security Essentials: Applications and Standards - W. Stallings (Pearson Education)
5. eSecurity and You - Sandeep Oberoi (Tata McGraw-Hill)
6. Cyber Laws – Singh Yatindra
7. Cyber Crime – Bansal S K
8. Cyber law , E-commerce & M-Commerce – Ahmand Tabrez
9. Handbook of Cyber and E-commerce laws – Bakshi P M & Suri R K
10. Management Fundamentals and Information Systems Dr. Sushila Madan (Taxmann's)

Paper-II : PHP & My-SQL

Unit – I :

Introduction to PHP , PHP installations , PHP syntax , Variables , Constants , Data types, Operators and Expressions , **PHP control flow statement** : Conditional and Loop statements , Switch statement , Break and Continue.

Unit – II :

PHP function : Arithmetic ,String , Library , Date and Time functions

User defined functions : Defining a function with Parameters and without parameters , Returning value from function , Dynamic function calls , Accessing variables with the global statement , Function calls with the static statement , Setting default values for arguments , Passing arguments to a function by value , Passing arguments to a function by reference.

Arrays : Array types , Declaration , Creation , Entering data into an array , Printing of array element , Searching , Sorting and Merging of array , String manipulation

Unit – III :

PHP Forms : Form handling , Elements of form , Working with forms , Combine HTML and PHP code. **Form validation** : Server side and Client validation , Working with regular expression

File handling :

PHP Files : Concept of file, Mode of files , Open and Close , Creation and Reading of files , Working with directories in PHP , Upload – File form

PHP Cookies : Anatomy of a cookie , Setting a cookie with PHP , Deleting a cookie, Creating session cookie

PHP Sessions : Starting a session , Working with session variables , Destroying a session , Passing session ids , Encoding and Decoding session variables

Unit – IV :

Introduction to MySql , Benefits of MySql , Parameters of MySql : Database objects , reserve words , key words , literals , variables , data types

Commands to be covered

1. Data Definition Commands
2. Data Manipulation Commands
3. Data Control Commands

Clauses : where , order by , group by , having , intersect , MySql predicates : Comparison , like , between , null , exists , Subqueries , Connectivity with PHP

BOOKS RECOMMENDED

1. PHP6 AND MYSQL – BIBLE BY STEVE SUEHRING , TIM CONVERSE AND JOYCE PARK (WILEY INDIA)
2. BEGINNING PHP AND MYSQL , FOURTH EDITION BY JASON GILMORE
3. Beginning PHP, Apache, MySQL Web Development
4. Teach Yourself MySQL in 21 days - Techmedia

Paper-III : ELECTIVE

Elective : (i) Advance Java (ii) OOPS & C++ (iii) ASP.NET

Elective (i) Advance Java

Unit – I

Overview of Networking - Networking Basics , Client-Server Architecture , Working with URLs – Creating a URL , Parsing a URL , Reading Directly from a URL , Connecting to a URL, Reading from and Writing to a URL connection , Network Protocols , Developing Networking Applications in Java.

Sockets – Introduction , Reading from and Writing to a Socket , Writing the Server Side of a Socket

Datagrams – Datagram , Writing a Datagram Client and Server , Broadcasting to Multiple Recipients

Unit – II

Swing : Swing Features and Concepts , **Using Swing Components** – The JComponent Class , **Using Top-Level Containers** (Frames , Dialogs , Applets) , **Using Intermediate Swing Containers** (Panels , Scroll Panes , Split Panes , Tabbed Panes , Internal Frames, Layered Panes , Root Panes) **Using Atomic Components** (Buttons , check Boxes and Radio buttons , combo Boxes , Labels , Lists , Menus , Tables , Text Components , Trees)

Laying out Components within a Container - Using Layout Managers (BorderLayout , BoxLayout, CardLayout, FlowLayout, GridLayout,GridBagLayout)

Writing Event Listeners - Implementing Listeners for Commonly Handled Events (Action Listener , Component Listeners , Container Listener , Focus Listener , Internal Frame Listener , Item Listener , Key Listener , Mouse Listener , Mouse-Motion Listener , Window Listener)

Unit – III

Java Beans : Definition , Advantage , Installing , Starting and using BDK (Bean Development Kit), **Using the BeanBox** – Starting and Using the BeanBox , The BeanBox Menus , Using the BeanBox to Generate Applets , **Writing a Simple Bean Properties** – Simple Properties , Bound Properties , Constrained Properties , Indexed Properties , Manipulating Events in the BeanBox , The BeanInfo Interface , Bean customization , Bean Persistence , Using the BeanContext API

JSP : Advantage of JSP technology (Comparison with ASP / Servlet) , JSP Architecture , JSP Access Model , JSP Syntax Basic (Declarations , Expression , Scriptlets , Comments) , JSP Implicit Object , Object Scope , Synchronization Issue , Session management

Unit - IV

JDBC : Introduction , Establishing Connectivity and working with connections interface , Working with statements , Creating and Executing SQL statements , Working with Result Set Object and Result Set Meta Data

Servlets : Introduction , Life cycle servlets , Java Servlets , Java Servlets Development Kit , creating , Compiling and running servlet , **The servlet API** : javax.servlet package , Reading the servlet Parameters , Reading Initialization parameter , The javax.servlet.http. Package , Handling HTTP Request and Response (GET / POST Request)

BOOKS RECOMMENDED

1. PATRICK NAUGHTON & HERBERT SCHILDT, "THE COMPLETE REFERENCE: JAVA 2", TATA MCGRAW HILL, 1999
2. JOSEPH WEBER, "USING JAVA 2 PLATFORM", PRENTICE HALL OF INDIA, 2000.
3. DEITEL & DEITEL, "JAVA HOW TO PROGRAM", PRENTICE HALL, 5TH EDITION ,2002
4. PETER HAGGAR, "PRACTICAL JAVA: PROGRAMMING LANGUAGE GUIDE", ADDISON-WESLEY PUB CO, 1ST EDITION, 2000
5. BRUCE ECKEL, "THINKING IN JAVA", PEARSON EDUCATION ASIA, 2ND EDITION, 2000

Elective (ii) : OOPS & C++

UNIT – I

Benefits of OPP, Data type in C++, User-defined data types, operators in C++ Variables and constants, manipulators, operator precedence, Control structures – if-then, switch st, while loop, do-while loop, goto break, continue, user defined and standard library function, function prototype, default arguments, return by reference, call by value call by reference, overloading of functions.

UNIT – II

Classes and objects private member functions, nesting of members functions, static data members, static member function, array of objects, objects, as function arguments, friendly function returning objects, constructions, destructions, constructing two dimensional arrays.,

Operation overloading, overloading Unary Operators, Overloading Binary Operators, Overloading Binary operators using friends, Type conversion.

Inheritance, private, public and protected access specifier, Single inheritance, multilevel inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance. Virtual function, abstract classes, Pure virtual function, pointers to objects, this pointer, pointer to derived class.

UNIT – III

C++ streams, C++ stream classes, Unformatted I/O operations, Classes for the stream operations, opening and closing a file, error handling, ios flags, redirecting input and output, open() with different modes. Sequential input and output operations.

Command-line arguments, overloading the extraction and insertion operators, difference in text and binary modes, write(), read(),

UNIT – IV

Data structure using C++

Stack : push and pop operation, polish notation, evaluation of postfix expression.

Queue – insertion and deletion operation

Linked list : Memory representation, memory allocation, garbage collection, traversing insertion deletion, searching a node in linked list.

BOOK RECOMMENDED:

1. C++ Programming for the absolute beginner by Henkemans Lee (PHI)
2. Object Oriented Programming in C++ by Barkakati (PHI)
3. Object Oriented Programming with C++ - by E Balguruswamy (TATA Megraw Hill)
4. Mastering C++ : by Stephen Prata
5. Data structure in C++ - by N.S. Kutti and P Y Padhye

Elective (iii) ASP.NET

Unit – I

Introduction to ASP, Advantages/Disadvantages, applications of ASP

Upgrading ASP to ASP.NET

ASP vs. ASP.NET, Upgrading HTML Pages to ASP.NET, Upgrading ASP Pages to ASP.NET

Creating Web Forms Applications

Creating an ASP.NET Web Application Project, Responding to Events, Where Does Processing Occur?, Namespace Fundamentals, Maintaining State Information

Creating a User Interface

· Using Controls, · Validating Data, · Navigating Between Forms, · Navigation Between Pages

Unit-II

Data Binding

· Bind Data to the UI , Transform and Filter Data

Storing and Retrieving Data with ADO.NET

Accessing Data with ADO.NET, Using Data Sets on Web Forms, Processing Transactions

Catching and Correcting Errors

· Using Exception Handling, Using Error Pages, Logging Exceptions

Unit-III

Web Services

· Creating Web Services, Discovering Web Services, Instantiating and Invoking Web Services

Testing Web Applications

· Creating Tests, · Running Tests, · Debugging

Unit-IV

Building and Deploying Web Applications

· Building a Web Application, Deploying a Web Application, Creating an Installation Program

Maintaining Security

· Authenticating and Authorizing Users, Using Windows Authentication, Using Forms Authentication

Books Recommended

1. Mastering ASP.Net BPB Publication
2. ASP.net – The Complete Reference Tata McGraw Hill
3. Active Server Pages 3.0 (in 21 days) by Techmedia
4. Beginning Active Server Pages 3.0 by Wrox Press

Practicals :

Practical-I : PHP & My-SQL

Practical-II : Elective

Project

Project :

Towards the end of the second year of study, a student will be examined in the course "Project Work".

- a. Project Work may be done individually or in groups (Maximum 3 students) in case of bigger projects. However if project is done in groups, each student must be given a responsibility for a distinct module and care should be taken to monitor the progress of individual student.
- b. The Project Work should be done using the tools covered in Master of Computer Management.
- c. The Project Work should be of such a nature that it could prove useful or be relevant from the commercial / management angle.
- d. The project work will carry 100 marks.
- e. Project Work can be carried out in the Institute or outside with prior permission of the Institute.
- f. The external viva-voce examination for Project Work would be held as per the Examination Time Table of the second year of study, by a panel of one external and one Internal examiner.

Types of Project

As majority of the students are expected to work out a project in some industry/research and development laboratories/educational institutions/software export companies, it is suggested that the project is to be chosen which should have some direct relevance in day-today activities of the candidates in his/her institution. The Applications Areas of project - Financial/Marketing/Database Management System/ Relational Database Management System/E-Commerce /Internet/ Manufacturing/ web Designing etc.

Project Proposal (Synopsis)

The project proposal should be prepared in consultation with the guide. The project guide must be a person having minimum Qualification MCM/M.Sc. (Computers)/ M.Sc. (Maths/Electronics/Statistics/Physics + Post B.Sc. Dip. In Comp. Sc. & Appl.)/MCA. The project proposal should clearly state the objectives and environment of the proposed project to be undertaken. It should have full details in the following form:

1. Title of the project
2. Objectives of the Project
3. Project Category (DBMS/RDBMS/OOPS/Web Designing/Internet etc.)
4. Tools/Platform, Languages to be used
5. A complete Structure of the program:
 - i. Analysis.
 - ii. Numbers of Modules.
 - iii. Data Structures or Tables
 - iv. Process Logic.
 - v. Types of Report Generation.
6. Scope of future Application.

Project Report Formulation.

1. Title Page.
2. Certificate Page.
3. Declaration Page.
4. Acknowledgment Page.
5. Index or Content Page.
6. Documentation.
 - i. Introduction/Objectives.
 - ii. Preliminary System Analysis.

- Identification of Need.
 - Preliminary Investigation.
 - Feasibility Study.
 - Need Of New System.
 - Flaws in Present System.
 - iii. Project Category.
 - iv. Software Requirement Specification.
 - v. Detailed System Analysis.
 - Data Flow Diagram.
 - Numbers of Modules and Process Logic.
 - Data Structures and Tables.
 - Entity-Relationship Diagram.
 - vi. System Design.
 - Source Code.
 - Input screen & Output Screen.
 - vii Validation Checks.
 - viii Implementation, Evaluation and Maintenance.
 - ix Security Measures taken.
 - x Future Scope of the project.
 - xi Bibliography.
-

Note :-

- i. A Student is expected to complete the Assignments based on Syllabus of Practical subjects and Submit the same in the form of a files (assignment Record) at the end of Academic Session for the evaluation purpose.
- ii. A student should submit internal assessment of each theory paper prescribed by the subject teacher.

Classification Of Practical Marks :-

Practical – I	Marks
1. Writing a Program or Problem (Algorithm & Flowchart)	40
2. Execute on a computer	
3. Taking Hard Copy	
Practical – II	
1. Writing a Program or Problem (Algorithm & Program)	20
Viva Voce	20
Practical Record	20

Total Marks	100

Classification Of Marks on Project :-

Report & Documentation	40
Viva voce (External)	40
Viva voce (Internal)	20

Total Marks	100

The marks of Practical and Project shall be notified as a whole out of 100 in Foil/C-Foil.
