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<td>2) TCP/IP Protocol Suite</td>
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<td>3) Open Source Technology</td>
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<td>4) Bio Informatics</td>
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<td>2) Digital Image Processing</td>
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<td>3) Distributed Systems</td>
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**VI - Semester**

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### Credits for each Semester

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Core - 124
Core Elective - 12
Non Major Elective - 4
Total - 140
PROGRAMMING IN C

Objective

Aim of the course is to enable the student to understand the programming constructs and make the student to write programs in an advanced level. It introduces control structures, arrays, functions, pointers, file handling, Graphics Commands and registers.

UNIT I

Introduction to C – History – Identifiers, Keyword, variables – Operators and expressions – Data types – Arithmetic expressions – I/O statements – Control statements – Looping statements

UNIT II

Arrays - Strings and string functions – Procedures – Functions – Recursive Functions -User defined functions – Built-in-functions.

UNIT III

Structure definition, processing a structure, user defined data types (typedef) - array of structure – Self-referential structure – More about structures – Union - C preprocessor – Data input/output functions.

UNIT IV

Introduction to pointers – Operators, expressions, passing on addressing to a function, function-returning pointers - Pointers and array - Array of pointers - Pointers and strings – Standard library functions - Pointers and structures - dynamic memory allocations - Pointers to function.

UNIT V


Books for Study


Books for References

Objective

The objective of this course is to understand the basic structure and operation of a digital computer and computer architecture design by examining architectural concepts.

UNIT I


UNIT II


UNIT III


UNIT IV


UNIT V

Memory Organization – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory – Memory Management Hardware.

Books for Study :

Books for References :
ARUL ANANDAR COLLEGE (AUTONOMOUS)- KARUMATHUR
DEPARTMENT OF COMPUTER APPLICATIONS

Class : MCA  Part : Core-3
Semester : I  Hours : 60
Subject Code : 15PCAC31  Credit : 4

MATHEMATICAL FOUNDATIONS OF COMPUTER APPLICATIONS

Objectives
Aim of the course is to enable the student to understand the concepts of mathematical logic, set theory, Functions, Graph Theory and Finite state Automata.

UNIT I  (12 hours)


UNIT II  (12 hours)
Basic concepts of set theory: Notation – Inclusion of equality of sets – power set – operation on sets – venn diagrams – Cartesian products. Relations and Ordering:

UNIT III  (12 hours)
Groups: Definition and examples – Sub groups – Homomorphism – Cosets – Normal Subgroups.

UNIT IV  (12 hours)
Graph theory: Basic Definitions – Paths, ReachabilityConnectedness – Matrix Representation of graphs – Trees.

UNIT V  (12 hours)

Books for Study :

Books for References :
OPERATING SYSTEMS

Objective
Aim of the course is to enable the student to understand the concepts of Operating System, Process Concepts, Concurrent Programming, Storage Management Process Management, and Operating System Security.

UNIT I
(12 hours)

UNIT II
(12 hours)

UNIT III
(12 hours)

UNIT IV
(12 hours)

UNIT V
(12 hours)

Books for Study:

Books for References:
WEB GRAPHICS

Objectives:

Aim of the course is to enable the student to develop and implement the graphics and animations in Web applications using HTML, Photoshop, Flash and Dreamweaver.

UNIT I: HTML (12 hours)


UNIT II: PHOTOSHOP (12 hours)


UNIT III (12 hours)


UNIT IV: FLASH (12 hours)


UNIT V: DREAMWEAVER (12 hours)


Books for Study


Books for References:

1. Deitel,2003, Internet and World Wide Web How to program, Prentice Hall
ORGANIZATIONAL STRUCTURE & PERSONNEL MANAGEMENT

Objectives

Aim of the course is to enable the student to understand the concepts of organizational structure, Group Dynamics and Team Development, Personal Management, Human Resources Management, Organizational Change and Development.

UNIT I: organizational structure (12 hours)

UNIT II: Group Dynamics and Team Development (12 hours)

UNIT III: Personal Management (12 hours)
Concepts, Evolution, objectives and function of Personal Management - Personal Management as a Profession – Challenges for the personal executives of Today - Personal Management in India.

UNIT IV: Human Resources Management (12 hours)

UNIT V: Organizational Change and Development (12 hours)
Nature and levels of change – Reasons for Organizational change – Resistance to change – History and emergence of Organizational development – Objective of OD – Characteristic of OD – OD techniques – Innovation and Organizational transformation.

Book for Study:

Book for References:
Objectives:
Aim of the course is to enable the student to understand the concepts of management theory and practice, management decision making, human resource management, motivation, leadership quality and global management theory.

UNIT I (12 hours)

UNIT II (12 hours)

UNIT III (12 hours)
Human Resource Management and selection – Performance appraisal and career strategy – Manager and organizational development.

UNIT IV (12 hours)

UNIT V (12 hours)
The system and Process of controlling control techniques and information Technology – Productivity and Operations Management – Overall and Preventive Control - Towards a unified, Global management theory.

Book for Study:

Books for References:
INTERNET BASICS AND OFFICE AUTOMATION

Objectives

Aim of the course is to enable the student to understand the basics concepts of Internet and PC Software.

UNIT I: INTERNET BASICS (12 hours)


UNIT II: E-MAIL (12 hours)

Working with direct and dialup links –TCP/IP, Modem – parity –Duplex – flow control – connecting to a net – dialup troubleshooting - Electronic mail – working of email – word processor for e-mail –addresses –mail reflectors , mailing lists , list servers – talk, search , access mailing list.

UNIT III: MS-EXCEL - I (12 hours)

MS-Excel basics - Rearranging worksheets: cells-copying cells- sorting cell data-inserting rows- inserting columns- inserting cells- inserting as you paste- deleting parts of a worksheet-cleaning parts of a worksheet - formatting tips and techniques- Organizing large projects- An introduction to functions. Parts of a function-functions requiring add-ins- online functions help- the function wizard.

UNIT IV: MS-EXCEL-II (12 hours)

Excel’s chart features: chart parts and terminology, instant charts with the chart wizard- creating charts on separate worksheets- adding chart notes and arrows-editing charts- Changing worksheet values by dragging chart parts- setting the default chart type-data map - Working with graphics in Excel : Creating and placing graphic objects - Using worksheets as databases - Automating what-if projects- Auditing and troubleshooting worksheets.

UNIT V : MS-ACCESS (12 hours)

Introduction to Access - Creating a simple database and tables - Forms- Entering and editing data-Sorting and displaying data- Printing reports- forms- letters and labels- Relational databases- Expressions - macros and other automation- Graphics in databases- Linking- importing and exporting records.
Text Books


Reference Books

UNIT I (12 Hours)


UNIT II (12 Hours)


UNIT III (12 Hours)

Interpolation – Newton’s forward and backward interpolation formulae – Strling’s formula – Lagrange’s interpolation formula – divided differences.

UNIT IV (12 Hours)

Numerical differentiation and integration – differentiation formula – trapezoidal and Simpson’s rules.

UNIT V (12 Hours)


TEXT BOOK

1. Write a program to evaluate area of triangle using the formula \( \sqrt{s(s-a)(s-b)(s-c)} \)
2. Write a program to swap two numbers.
3. Write a program to find the greatest of three numbers and print the numbers in ascending order.
4. Write a program to perform the arithmetic expression using switch statement.
5. Write a program to find a factorial of given number using do while statement.
6. Write a program to print all prime numbers upto ‘N’ numbers.
7. Write a program to print sum of ‘N’ natural numbers.
8. Write a program to find the total number of even integers and odd integers of ‘N’ numbers.
9. Write a program to find the sum of odd numbers and even numbers upto ‘N’ numbers.
10. Write a program to print the product of two matrices of any order.
11. Write a program to read ‘N’ number of students with 5 subject marks.
12. Write a program to find greatest of ‘n’ numbers using functions.
13. Write a program to print Fibonacci series using recursion.
14. Write a program to convert all lower case to uppercase characters.
15. Write a program to sort 5 city names in alphabetical order.

**CYCLE II**

16. Write a program to extract a string.
17. Write a program to implement the concept of call by value.
18. Write a program to implement the concept of call by reference.
19. Write a program to implement the concept of structure and union.
20. Write a program to access a variable using pointer.
21. Write a program to print the element of array using pointers.
22. Write a program to print the elements of a structure using pointers.
23. Write a program to display student information by initializing structures.
24. Write a program to pass structure as arguments to function and calculate total marks of 5 subjects.
25. Write a program to write integer data into file and read it from file.
OBJECT ORIENTED PROGRAMMING WITH C++

Objective

Aim of the course is to enable the student to understand the basic concepts of Oop, Exception Handling and Consol I/O Operations.

UNIT 1 (12 - hours)
Principles of OOPS – Beginning with C++ - Tokens, Expressions and Control Structure.

UNIT II (12 - hours)
Functions in C++ - Classes and Objects-Friend Functions-Friend Classes-Inline Function-Static Members-Arrays-Pointers-References-Dynamic Allocation

UNIT III (12 - hours)
Function Overloading-Overloading Constructor Functions-Copy Constructors-Default Argument-Operator Overloading-Member Operator Overloading-Overloading new and delete –Type Conversion.

UNIT IV (12 - hours)
Inheritance: Extending Classes – Pointers , Virtual Functions And Polymorphism - Virtual Functions - Pure Virtual Functions -Templates- Exception Handling.

UNIT V (12 - hours)
Managing Console I/O Opearations – Working with FilesOpearations – Working with Files.

TEXT BOOK

REFERENCES
DESIGN AND ANALYSIS OF ALGORITHMS

Objective

Aim of the course is to enable the student to understand the concepts of Data Structures and its related algorithms.

UNIT I

(12 - hours)


UNIT II

(12 - hours)


UNIT III

(12 - hours)


UNIT IV

(12 - hours)

Basic Search Techniques : Abstract data Type, Algorithmic Notation, Sequential Searching, Efficiency of Sequential Searching, Searching an Ordered Table, Indexed Sequential Search, Binary Search , Interpolation Search – Tree Searching – Hashing.

UNIT V

(12 - hours)


TEXTBOOK


REFERENCES

RELATIONAL DATABASE MANAGEMENT SYSTEM

**Objective**

To enable the student to understand the Database Concepts, Relational Database Concepts, Query processing, Concurrency Control Deadlock Handling and Recovery System.

**UNIT I**

(12 hours)


**UNIT II**

(12 hours)

SQL - Basic Structure - Set Operations - Complex Queries - Joined Queries - DDL - Embedded SQL - Other SQL Functions - Query by Example - Integrity and Security of searching - Relational Database Design

**UNIT III**

(12 hours)

Storage And File Structure - Disks - RAID - File Organization - Indexing And Hashing - B+ TREE - B Tree - Static Hashing - Dynamic Hashing - Multiple Key Access

**UNIT IV**

(12 hours)

Query Processing - Selection Operation - Sorting - Join Operation - Evaluation of Expressions - Query Optimization

**UNIT V**

(12 hours)

Transaction Concept - Static Implementation - Concurrency Control - Protocols - Deadlock Handling - Recovery Systems - Recovery with Concurrent Transactions

**TEXT BOOK**


**REFERENCES**

ACCOUNTING AND FINANCIAL MANAGEMENT

Objective
To enable the student to understand the financial management, balance sheet preparation and Budget preparation and control methods

UNIT I
(F12 hours)
Functions and scope of financial management – owner’s fund and borrower’s fund – trading on equity – owner capitalization and under capitalization.

UNIT II
(F12 hours)

UNIT III
(F12 hours)
Working capital management – sources and utilization – bank credit for working capital.

UNIT IV
(F12 hours)

UNIT V
(F12 hours)
Budgeting and budgeting control.

TEXTBOOK

REFERENCES
1. Iyengar S.P., Cost and Management Accounting, Sultan Chand And Co.
OBJECTIVES

Aim of the course is to enable the student to understand Internet Basics and design the static and dynamic web pages using HTML and VBScript.

UNIT I: (Internet Basics) (12 hours)


UNIT II: (HTML – I) (12 hours)


UNIT III: (HTML – II) (12 hours)


UNIT IV: (VB Script – I) (12 hours)


UNIT V: (VB Script – II) (12 hours)

Procedures – Objects and VB Script – Cookies

TEXTBOOK


REFERENCE

OBJECT ORIENTED PROGRAMMING LAB CYCLE

1. Write a C++ Program to illustrate Enumeration and Function Overloading
2. Write a C++ Program to illustrate Scope and Storage class
3. Write a C++ Program to illustrate friend functions
4. Write a C++ Program to illustrate the use of Constructors and Destructors and Constructor Overloading
5. Write a Program to illustrate Static member and methods
6. Write a Program to illustrate Bit fields
7. Write a Program to overload as binary operator, friend and member function
8. Write a Program to overload unary operator in Postfix and Prefix form as member and friend function
9. Write a Program to illustrate Iterators and Containers
10. Write a C++ Program to illustrate function templates
11. Write a C++ Program to illustrate template class
12. Write C++ Programs and incorporating various forms of Inheritance
13. Write a C++ Program to illustrate Virtual functions
14. Exception Handling
15. File Handling: Open, clode, update
RDBMS-LAB PLAN FOR (2015-16)

Introduction:

Week 1: Oracle 9i setup & connecting to Oracle from SQL*Plus.

Unit – I (SQL):

Week 2: Creating, Altering, Dropping tables with Constraints, Insert Table.
   - Experiment 1: Create Tables
   - Experiment 2: Alter table with changes in columns
   - Experiment 3: Alter table with constraints
   - Experiment 4: Dropping Tables
   - Experiment 5: Inserting Data into Tables.

Week 3: Inserting, Simple Select, Char, Number, Date functions
   - Experiment 6: Simple Select
   - Experiment 7: Select with conditions.
   - Experiment 8: Using character functions.
   - Experiment 9: Using number functions.
   - Experiment 10: Using date functions.

Week 4: Detailed SELECT with sub-queries, EQUI-JOINS, correlated sub-queries.
   - Experiment 11: Single row sub-queries.
   - Experiment 12: Multiple row sub-queries.
   - Experiment 13: Equal joins.
   - Experiment 14: correlated sub-queries.

Week 5: GROUPING, SET, UPDATE, DELETE, VIEWS
   - Experiment 15: Aggregate functions.
   - Experiment 16: Grouping clauses
   - Experiment 17: Select groups with having
   - Experiment 18: Union/Intersection statements
   - Experiment 19: Creating and dropping views.

Week 6: Back Logs, if any and/or Additional Exercises for Unit – I.

Unit – II (PL/SQL: Program Development):

Week 7: Iterative PL/SQL Blocks and functions.
   - Experiment 20: Simple PL/SQL Blocks
   - Experiment 21: Nested IF and CASE in PL/SQL
   - Experiment 22: NULLIF and COALESCE functions
   - Experiment 23: WHILE & FOR Loops
Week 8: Transaction support in PL/SQL
- Experiment 24: COMMIT & ROLLBACK
- Experiment 25: SAVEPOINTS

Week 9: Exception support in PL/SQL
- Experiment 26: Exception Blocks
- Experiment 27: BUILT-IN Exceptions
- Experiment 28: User defined Exceptions
- Experiment 29: Raising application error

Week 10: Functions, Procedures, Packages
- Experiment 30: Creating Stored Procedures with Parameters.
- Experiment 31: Creating Stored Functions with Parameters.
- Experiment 32: Grouping Stored Packages.

Week 11: Back Logs, if any and/or Additional Exercises for Unit – II.

Unit – III (PL/SQL: Cursors & Triggers)

Week 12: Declare, Fetch, Open, and Close Cursors
- Experiment 33: Declaring Cursors.
- Experiment 34: Opening & Closing Cursors.
- Experiment 35: Fetch from an open Cursor.
- Experiment 36: Accessing current row in the cursor.

Week 13: Before & After [Row and Statement Triggers], Instead of Triggers.
- Experiment 37: Creating Before Statement Trigger.
- Experiment 38: Creating After Statement Trigger.
- Experiment 39: Creating Before Row Trigger.
- Experiment 40: Creating After Row Trigger.
- Experiment 41: Creating Triggers with when condition.
- Experiment 42: Creating instead of triggers to replaces updating from views.

Week 14: Back Logs, if any and/or Additional Exercises for Unit – III
OBJECTIVES:

Aim of the course is to enable the student to understand the concepts of Java applications, Multithreaded Programming, Event Delegation model, Java Foundation classes (JFC) /Swings, ODBC and JDBC, TCP and UDP sockets.

UNIT I: (12 Hours)
Introduction - Genesis of Java- Types of Java applications – Data types, variables and arrays – Operators – Control statements – Classes and Methods – Inheritance – Packages and Interfaces – Exception Handling.

UNIT II: (12 Hours)

UNIT III: (12 Hours)

UNIT IV: (12 Hours)

UNIT V: (12 Hours)
ODBC and JDBC – JDBC Overview – JDBC implementation – Connection class – Statements – Other JDBC classes – Communications and Networking – Internet Address class – URL class- TCP sockets – UDP sockets.

TEXT BOOKS

REFERENCES
RESOURCE MANAGEMENT TECHNIQUES

Objective:

Aim of the course is to enable the student to understand the linear programming problems, transportation & assignment problems, Integer programming problems, Network problems and queuing theory.

UNIT I: (12 Hours)

Mathematical Formulation - Graphical Solution of linear programming models – Simplex method – Artificial variable Techniques- Variants of Simplex method

UNIT II: (12 Hours)

Mathematical formulation of transportation problem- Methods for finding initial basic feasible solution – optimum solution - degeneracy – Mathematical formulation of assignment models – Hungarian Algorithm – Variants of the Assignment problem

UNIT III: (12 Hours)

Formulation – Gomory’s IPP method – Gomory’s mixed integer method – Branch and bound technique.

UNIT IV: (12 Hours)


UNIT V: (12 Hours)

 Characteristics of Queuing Models – Poisson Queues - (M / M / 1) : (FIFO / ∞ /∞), (M / M / 1) : (FIFO / N / ∞), (M / M / C) : (FIFO / ∞ / ∞), (M / M / C) : (FIFO / N / ∞) models.

TEXT BOOKS


REFERENCES

OBJECT ORIENTED ANALYSIS AND DESIGN

Objectives:

Aim of the course is to enable the student to understand the concepts of Object oriented system development life cycle, methodology and UML, object oriented analysis, object oriented design and software quality.

UNIT I:

(12 Hours)


UNIT II:

(12 Hours)


UNIT III:

(12 Hours)

Identifying Use case – Business object analysis – Use case driven object oriented analysis – Use case model – Documentation – Classification – Identifying object, relationships, attributes, methods – Super-sub class – A part of relationships Identifying attributes and methods – Object responsibility

UNIT IV:

(12 Hours)

Design process – Axions – Colollaries – Designing classes – Class visibility – Refining attributes – Methods and protocols – Object storage and object interoperability – Databases – Object relational systems – Designing interface objects – Macro and Micro level processes – The purpose of a view layer interface

UNIT V:

(12 Hours)


TEXT BOOKS


REFERENCES

DATA COMMUNICATIONS AND NETWORKING

Objective:
Aim of the course is to enable the student to understand the Data Communication system concepts, analog signal, Encoding of analog and Digital signals, Transmission media and Multiplexing, Local Area Networks, TCP and UDP concepts.

UNIT I:  
(12 Hours)
Data communication system components – network criteria – protocols and standards – Basic concepts: line configuration, topology, transmission mode, categories of networks and internetworks – the OSI Reference model – functions of each layer.

UNIT II:  
(12 Hours)
Signals – analog signal – its frequency spectrum and bandwidth – digital signals – its decompositions, bandwidths and data rate – encoding of analogy And digital signals – digital data transmission DTE – DCE interface and other interfaces such as EIA-449, EIA-530 and X21 – modems and their transmission rates.

UNIT III:  
(12 Hours)
Transmission media, and multiplexing - Types of transmission errors – detection and error correction methods – data link controls and protocols.

UNIT IV:  
(12 Hours)
Local Area Networks: Ethernet, token bus, token ring and FDDI, MANs: IEEE 802.6 and SMDS, switching in network layer- The ISDN services – the X.25 layers - Repeaters, bridges, routers and gateway.

UNIT V:  
(12 Hours)
The transport layer service – Upper OSI Layers – TCP And UDP- Domain name system - SMTP – WWW.

TEXT BOOK

REFERENCES
VISUAL PROGRAMMING

Objective:

Aim of the course is to enable the student to understand the Visual Basics and its Controls to develop the window applications.

UNIT I: (12 Hours)


UNIT II: (12 Hours)

Displaying Information - Determinate Loops - Indeterminate Loops - Conditionals - Built-in Functions - Functions and Procedures.

UNIT III: (12 Hours)

Lists - Arrays - Sorting and Searching - Records - Control Arrays - Combo Boxes - Grid Control - Projects with Multiple forms – Do Events and Sub Main - Error Trapping

UNIT IV: (12 Hours)


UNIT V: (12 Hours)


TEXT BOOK


REFERENCES

ADVANCE JAVA PROGRAMMING

Objectives
Aim of this course is able to develop the Platform independent GUI Applications, CGI Applications, Image Processing Applications and Application using Java. Security APIs

UNIT I: (12 Hours)
RMI Overview – Developing applications with RMI: Declaring & Implementing remote interfaces-stubs & skeletons, Registering remote objects, writing RMI clients – Pushing data from RMI Servlet – RMI over Inter- ORB Protocol

UNIT II: (12 Hours)

UNIT III: (12 Hours)

UNIT IV: (12 Hours)
The software component assembly model- The java beans development kit-developing beans – notable beans – using infobus - Glasgow developments - Application Builder tool- JAR files-Introspection-Bound Properties-Persistence-customizers - java beans API.

UNIT V: (12 Hours)
EJB architecture- EJB requirements – design and implementation – EJB session beans- EJB entity beans-EJB Clients – deployment tips, tricks and traps for building distributed and other systems – implementation and future directions of EJB-Variable in perl- perl control structures and operators – functions and scope

TEXT BOOK

REFERENCES
2. D. R. Callaway, 1999, Inside Servlets, Addison Wesley, Boston
5. Cay S Horstmann & Gary Cornell, Core Java Vol II Advanced Features, Addison Wesley.
WEB TECHNOLOGY

Objectives:

Aim of the course is to enable the student to understand the concepts of Basic Web Concepts, Java Script, VB Script, ASP fundamentals, features of XML technology and PHP.

UNIT I: (BASIC WEB CONCEPTS AND VBSCRIPT) (12 Hours)


UNIT II: (JAVA SCRIPT) (12 Hours)


UNIT III: (ASP) (12 Hours)


UNIT IV: (XML) (12 Hours)


UNIT V: (PHP) (12 Hours)


TEXT BOOKS

REFERENCES
6. Moulding Peter. 2001, PHP Black Book, Dreamtech Press Ltd,
SOFTWARE ENGINEERING

Objective:
Aim of the course is to enable the student to understand the concept of process models, Design, testing, Security, software configuration management and qualify assurance.

UNIT I: (12 Hours)

UNIT II: (12 Hours)

UNIT III: (12 Hours)
Design Concepts – Design Models – Pattern Based Design – Architectural Design – Component Level Design – Component – Class Based And Conventional Components Design – User Interface – Analysis And Design

UNIT IV: (12 Hours)

UNIT V: (12 Hours)

TEXT BOOK

REFERENCES
ARUL ANANDAR COLLEGE (AUTONOMOUS)- KARUMATHUR  
DEPARTMENT OF COMPUTER APPLICATIONS

Class : MCA  Part : III Core  
Semester : IV  Hours : 60  
Subject Code : 12PCC444  Credit : 4

COMPUTER GRAPHICS AND MULTIMEDIA SYSTEMS

Objective:

Aim of the course to enable the students to develop graphical packages using different output primitives with different algorithms, attributes and applying transformation in both 2D and in 3D and also to give exposure about multimedia systems and applications.

UNIT I: (INTRODUCTION) (12 Hours)


UNIT II: (2D TRANSFORMATIONS) (12 Hours)

Two dimensional transformations - Scaling and Rotations - Interactive Input methods - Polygons - Splines - Bezier Curves - Window view port mapping transformation.

UNIT III: (3D TRANSFORMATIONS) (12 Hours)


UNIT IV: (OVERVIEW OF MULTIMEDIA) (12 Hours)


UNIT V: (MULTIMEDIA SYSTEMS AND APPLICATIONS) (12 Hours)

Multimedia communication systems - Data base systems - Synchronization Issues - Presentation requirements - Applications - Video conferencing - Virtual reality - Interactive video - video on demand

TEXT BOOKS


REFERENCES

TCP/IP PROTOCOL SUITE

Objective:

This course will provide students with a broad overview of internet and transmission control protocols, application layer, client server model and applications of protocols.

UNIT I: (INTRODUCTION) (12 Hours)

Standards - Internet - History- OSI model - Protocol suite - Addressing - Transmission media - Local Area and Wide Area Networks - Switching - Connecting devices - IP addressing

UNIT II: (INTERNET PROTOCOL) (12 Hours)

Subnetting - Supernetting - IP packets - Delivery - Routing - Routing model - Routing table - Datagram - Fragmentation - Checksum - IP Design - ARP - RARP - Internet control message protocol - Internet group management protocol

UNIT III: (TRANSMISSION CONTROL PROTOCOL) (12 Hours)

User Datagram protocol - UDP operation - Use - UDP design - TCP services - Flow control - Error control - TCP operation and design - connection - Transition diagram - Congestion control

UNIT IV: (APPLICATION LAYER AND CLIENT SERVER MODEL) (12 Hours)

Concurrency - BOOTP - DHCP - Domain name system - Name space - Distribution - Resolution - Messages - Telnet - Rlogin - Network Virtual Terminal - Character Set - Controlling the server - Remote login

UNIT V: (APPLICATION PROTOCOLS) (12 Hours)


TEXT BOOKS

REFERENCES
Class : MCA  Part : Core
Semester : V  Hours : 60
Subject Code : 12PCC154  Credit : 4

DOT NET PROGRAMMING
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Objectives:

Aim of the course is to enable the student to understand the Basic Architecture of .NET framework, overview of ODBC – universal Data Access – Introduction to ADO.NET, Programming with visual Studio.Net, Data form wizard.

UNIT I: (12 hours)

UNIT II: (12 hours)

UNIT III: (12 hours)

UNIT IV: (12 hours)

UNIT V: (12 hours)

TEXT BOOKS:
1. Alex, “Professional ASP.Net 1.1”, Homler and Group Wrox Publications.
2. David Sceppa, “Microsoft ADO.NET ( Core Reference )”, Microsoft Press, 2002

REFERENCES:
SOFTWARE TESTING
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Objectives:
This course will enable the designers and users of the software to implement and test the testing strategies and methodologies, testing Object Oriented software, test management and tools for testing.

UNIT I: (12 hours)

UNIT II: (12 hours)

UNIT III: (12 hours)

UNIT IV: (12 hours)

UNIT V: (12 hours)

TEXT BOOK:

REFERENCES:
DATA MINING & DATA WAREHOUSING

Objective:
Aim of the course is to understand the basic concepts of data mining and its classification along with its application. This course introduces data warehousing and data mining and its architectures, Tasks under data mining, Association Rules, Classifications of data mining and application and trends in data mining.

Data Mining:
UNIT I:

UNIT II:

UNIT III:
Preprocessing and post processing in Data Mining – Steps in preprocessing – Discretization – Feature Extraction, selection and construction – Post processing – Association Rule.

UNIT IV:

Data Warehousing:
UNIT V:

Text Book:

Reference:
MOBILE COMPUTING

(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Objectives:
Aim of the course is to enable the student to understand the basic concept of Mobile computing, wireless networks, mobile network layer, mobile transport layer, WAP.

UNIT I: (12 hours)

UNIT II: (12 hours)

UNIT III: (12 hours)

UNIT IV: (12 hours)
Traditional TCP- Indirect TCP- Snooping TCP- Mobile TCP- Fast retransmit/ Fast Recovery- Transmission/ Timeout Freezing – Selective Retransmission- Transaction Oriented TCP

UNIT V: (12 hours)

TEXT BOOK:

REFERENCES:
Objective:
Aim of the course is to enable the student to understand the Software Project Planning, Project Organization and Scheduling, Project Monitoring and Control, Software Quality Assurance and Testing, Project Management and Project Management Tools.

UNIT-I: (12 Hours)

UNIT-II: (12 Hours)

UNIT-III: (12 Hours)

UNIT-IV: (12 Hours)

UNIT-V: (12 Hours)

TEXT BOOKS:

REFERENCES:
OBJECTIVES:

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

Unit I

(12 Hours)

Arithmetic Numbers: Progressions (Sequences & Series) Number Series - LCM and HCF Simplifications – Square roots, Cube roots, - Problems on Numbers - Average.

Unit II

(12 Hours)

Percentages – Profit & Loss - Interest (Simple and Compound) – Partnership - Time and Distance -Time and Work – Surds and Indices.

Unit III

(12 Hours)

Ratio & Proportion - Problem on ages - Problem on Trains – Boats and Streams – Alligations or Mixture – Calendar.

Unit IV

(12 Hours)

Data Interpretation: Tabulation - Pie Chart - Bar Graphs - Line Graphs -Venn Diagrams (Syllogism).

Unit V

(12 Hours)


Text Book:


Reference Books

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<thead>
<tr>
<th>PART - A</th>
<th>Short Answer (No Choice)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There are 5 Units.</td>
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<tr>
<td></td>
<td>Each unit carries 2 questions</td>
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<td>10 x 2 = 20 Marks</td>
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<table>
<thead>
<tr>
<th>PART - B</th>
<th>Detailed Answer (Either or Choice)</th>
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<tbody>
<tr>
<td></td>
<td>Students can choose either A (or) B</td>
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<tr>
<td></td>
<td>Each unit carries one question with subdivisions.</td>
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<tr>
<td></td>
<td>The question should contain weightage for 16 marks</td>
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<td>5 x 16 = 80 Marks</td>
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| TOTAL   | 100 Marks |
Subject : Quantitative Aptitude  
Subject Code : 12PCE553

<table>
<thead>
<tr>
<th>Section</th>
<th>Marks</th>
<th>Description</th>
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</thead>
</table>
| **A**   | 15 x 1 = 15 | **Objective Type**
|         |       | Unit 1 - 5 Questions  
|         |       | Unit 2 - 4 Questions  
|         |       | Unit 3 - 3 Questions  
|         |       | Unit 5 - 3 Questions  
|         |       | **Total - 15 Questions** |
| **B**   | 5 X 7 = 35 | *(5 out of 5)*
|         |       | Each Unit Carries one question with either or choice form. |
| **C**   | 5 X 10 = 50 | *(5 out of 8)*
|         |       | Unit 1 - 2 Questions  
|         |       | Unit 2 - 2 Questions  
|         |       | Unit 3 - 2 Questions  
|         |       | Unit 4 - 1 Question  
|         |       | Unit 5 - 1 Question  
|         |       | **Total - 8 Questions** |

|       |       | 100 Marks |

Total
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Marks</th>
<th>Answering</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART - A</td>
<td>(5 out of 5) Each Unit Carries one question</td>
<td>$5 \times 3 = 15$ Marks</td>
<td>At least one Page</td>
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<tr>
<td>PART - B</td>
<td>(5 out of 5) Each Unit Carries one question with either or choice form Note: There are no Subdivisions</td>
<td>$5 \times 8 = 40$ Marks</td>
<td>At least Three Pages</td>
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<tr>
<td>PART-C</td>
<td>(3 out of 5) Each Unit Carries one question</td>
<td>$3 \times 15 = 45$ Marks</td>
<td>At least 6 Pages</td>
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<td>TOTAL</td>
<td></td>
<td>100 Marks</td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
<td>Marks</td>
<td>Answering</td>
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<tr>
<td>PART - A</td>
<td>(5 out of 5) Each Unit Carries one question</td>
<td>$5 \times 3 = 15$ Marks</td>
<td>At least one Page</td>
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<tr>
<td>PART - B</td>
<td>(5 out of 5) Each Unit Carries one question with either or choice form Note: There are no Subdivisions</td>
<td>$5 \times 8 = 40$ Marks</td>
<td>At least Three Pages</td>
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<tr>
<td>PART - C</td>
<td>(3 out of 5) Each Unit Carries one question</td>
<td>$3 \times 15 = 45$ Marks</td>
<td>At least 6 Pages</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>100</strong> Marks</td>
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