B.Sc ITM 1st Year
Course Outline
Semester I

Sl.No.	Subject	Marks
1.	English Eng (1.1.1)	50
2.	Computer System CS (1.1.2)	50
3.	Management Function MF (1.1.3)	50
4.	Digital Electronics and Logic Design DE & LD (1.1.4)	50
5.	Application Development in C Language ADC (1.1.5)	50
Practical		
6.	Standard Software Application SSA (1.1.6)	50
7.	Programming Using C Language PC (1.1.7)	50

Course Outline
Semester II

Sl. No	Subject	Marks
1.	Discrete Mathematics DM (1.2.8)	50
2.	Computer Networks CN (1.2.9)	50
3.	Programming Logic Technique PLT (1.2.10)	50
4.	Data Structure DS (1.2.11)	50
5.	DataBase Management System DBMS (1.2.12)	50
Practical		
6.	Networking & Internet NI (1.2.13)	50
7.	Project PJ (1.2.14)	50

Course Outline

Semester – III

SL NO	COMPULSORY	MARKS
1	Managerial Economics ME (2.3.15)	50
2	Programming in C++ C++(2.3.16)	50
HONOURS : SOFTWARE DESIGN / NETWORK ENGINEERING		
3	Computer Organization & Operating System CO & OS (2.3.17)	50
4	VB .Net Programming / Network Infrastructure Administration VB.Net / NA (2.3.18)	50
5	Software Testing / Advanced Network Infrastructure Administration ST / AN (2.3.19)	50
PRACTICAL		
6	VB .Net Programming / Network Infrastructure Administration VB.Net / NA (2.3.20)	50
7	Microsoft SQL Server MS SQL (2.3.21)	50

Course Outline
Semester – IV

SL NO	COMPULSORY	MARKS
1	OOPs in Java OJ (2.4.22)	50
2	Quantitative Technique QT (2.4.23)	50
HONOURS : SOFTWARE DESIGN / NETWORK ENGINEERING		
3	Software Engineering SE (2.4.24)	50
4	Linux Operating System / Data Communication Engineering LOS / DCE (2.4.25)	50
5	Programming in C# / Windows active Directory Services C# / WD (2.4.26)	50
PRACTICAL		
6	Linux Operating System / Windows Active Directory Services LOS / WD (2.4.27)	50
7	Project PJ (2.4.28)	50

Course Outline

Semester –V

SL NO	COMPULSORY	MARKS
1	Organisational Behaviour OB(3.5.29)	50
2	Computerised Accounting CA(3.5.30)	50
3	Operation Research OR(3.5.31)	50
4	Communicative English ENG(3.5.32)	50
HONOURS : SOFTWARE DESIGN / NETWORK ENGINEERING		
5	Visual C++ & MS Foundation Class / Windows Server 2003 Environment VC++ & MFC / WS (3.5.33)	50
6	Advanced Java / Network Infrastructure Design AJ / ND (3.5.34)	50
PRACTICAL		
7	VC++ & Microsoft Foundation Class / Windows Server 2003 Environment VC++ & MFC/ WS (3.5.35)	**50**
8	Advanced Java / Network Infrastructure Design AJ / ND (3.5.36)	**50**

Semester –VI

SL NO	INTERNSHIP	MARKS
1	Project (Internship) PJ(3.6.37)	200

ENGLISH

EN (1.1.1)

UNIT-I COMMUNICATION

1.1 Concept of Communication

- 1.1.1 Attributes
- 1.1.2 Process
- 1.1.3 Feedback

1.2. Methods of Communication

- 1.2.1 Verbal
- 1.2.2 Non-verbal
- 1.2.3 Body Language
- 1.2.4 Posture and gesture
- 1.2.5 Eye Contact

1.3 Paragraph Writing

- 1.3.1 Description of an event or object
- 1.3.2 Extending ideas on proverbs/maximum
- 1.3.3 Making a Précis

UNIT -II WRITING SKILL

2.1 Letter Writing

- 2.1.1 Informal Letter
- 2.1.2 Formal Letter
- 2.1.3 Business Letter

2.2 Report Writing

- 2.2.1 Social Report
- 2.2.2 Business Report
- 2.2.3 Official Report
- 2.2.4 News Paper Report

UNIT –III COMMUNICATIVE GRAMMARS

3.1 Communicative Grammars

- 3.1.1 Parts of Speech
- 3.1.2 Model Auxiliary
- 3.1.3 Tense Pattern
- 3.1.4 Voice change
- 3.1.5 Word very often confused

Ref : Effective English Communication – K. Mohan&M.Raman
Higher Secondary English Grammer – R.N.Panda

COMPUTER SYSTEM
CS (1.1.2)

UNIT – I INTRODUCTION TO COMPUTER, STORAGE AND I/O DEVICES

1.1 Introduction to Computer
- 1.1 1 Computer System Overview
- 1.1.2 Electronic Data Processing
- 1.1.3 Classification of Computers
- 1.1.4 Types of Operation
  - 1.1.4.1 I/O Bound
  - 1.1.4.2 Processor Bound
- 1.1.5 Components of Computer System
- 1.1.6 Control Unit
- 1.1.7 Memory Unit
  - 1.1.7.1 Primary
  - 1.1.7.2 Secondary
- 1.1.8 Arithmetic Logical Unit

1.2 Storage
- 1.2.1 Computer Storage
  - 1.2.1.1 Backing Storage
  - 1.2.1.2 Immediate Access Storage

1.3 Input and Output Devices
- 1.3.1 Input Device
- 1.3.2 Printers
  - 1.3.2.1 Impact & Non Impact Printers
  - 1.3.2.1 Line and Page Printer
  - 1.3.2.2 VDU
  - 1.3.2.3 LCD

UNIT –II LANGUAGE, SOFTWARE AND FILES

2.1 Language
- 2.1.1 Four Levels of language
- 2.1.2 Machine Level Language
- 2.1.3 Assembly Level Language
- 2.1.4 High Level Language
- 2.1.5 4th Generation Language

2.2 Software & Files
- 2.2.1 Software
- 2.2.1.2 Types of Software

2.2.1.2.1 System, Application and Utility Software

2.2.2 Translator

2.2.2.1 Compilers, Interpreters and Assemblers

2.2.3 Database Management System

2.2.4 Files

2.2.4.1 Types of file

2.2.4.2 File Organisation

2.2.4.3 Information Retrieval

UNIT- III DATA PROCESSING AND OPERATION

3.1 Data Processing and Operations

3.1.1 Location of data processing

3.1.2 Centralised

3.1.3 Decentralised

3.2 Data Processing System

3.2.1 Online

3.2.2 Real Time

3.2.3 Batch System

3.3 Controls within a computer system

3.3.1 Security

3.3.2 Preventive measures

Ref : Fundamental of Computers : Raja Raman

Information Technology – Curtin, TataMcGraw Hill

Computer Fundamentals – PK.Sinha-BPB

MANAGEMENT FUNCTIONS

MF (1.1.3)

UNIT I MANAGEMENT CONCEPTS

1.1 Organization and Management

- 1.1.1 The Management Process
- 1.1.2 Management Roles
- 1.1.3 Organizational Functions
- 1.1.4 Modern Management Thoughts

1.2 Marketing Management Concepts and Functions

UNIT II PLANNING, ORGANIZING AND COMMUNICATION

2.1 Planning
- 2.1.1 Importance of Planning
- 2.1.2 Hierarchy of Organizational Plans
- 2.1.3 Strategic Planning Process

2.2 Organising
- 2.2.1 The Organisational Process
- 2.2.2 Types of Organisational Structure

2.3 Communication
- 2.3.1 Importance of Effective Communication
- 2.3.2 Communication Process
- 2.3.3 Improving Communication

UNIT III DIRECTING, CONTROLLING AND HRD

3.1 Directing
- 3.1.1 Elements of Directing

3.2 Controlling
- 3.2.1 The Meaning of Control
- 3.2.2 Designing Control Systems

3.3 HRD
- 3.3.1 HRD Concept, Functions & Policies
- 3.3.2 HRIS(Human Resource Information System)
- 3.3.3 Wages & salary Administration

Reference Book

1. Fundamental of Business Organistion & Management
2. Y.K. Bhusan, S.Chand & Sons Publication

DIGITAL ELECTRONICS AND LOGIC DESIGN
DE & LD (1.1.4)

UNIT – I BOOLEAN ALGEBRA

1.1 Boolean Algebra

1.1.1 Definition of Boolean Algebra

1.1.2 Truth Table : Basic structure of Truth Table, Use of Truth Table, Boolean Operator, "OR" Operators, "NOT" Operator, "XOR" Operator, "NAND" Operator, "NOR" Operator, "XNOR" Operator. "NAND" as inverter, NOR gate as inverter, De- Morgan's Theorem, Dual Function of NAND gate, Dual Function of NOR gate, NAND gate as Universal gate, NOR gate as Universal gate, AND Operation on Variables, OR Operation on Variables.

1.1.3 Some application: Decimal to Binary Encoder, AND gate to Block/Transmit data, Binary to Decimal or Instruction Decoder, Odd parity Tester/Generator.

1.1.4 Sum-of Product Expression

1.1.5 Law of Boolean Algebra, Simplification using Boolean Law, and Exercise using Boolean Laws.

1.1.6 Kernaugh Map : K-Map Structure, Plotting the K-Map, Rules for grouping, Simplification using K-Map, Derivation of NAND Implementation, Derivation of NAND-NAND Implementation, Derivation of NOR Implementation , Derivation of NOR-NOR Implementation.

1.1.7 Programmable Logic Arrays (PLA)

UNIT-II COMBINATIONAL AND SEQUENTIAL CIRCUITS

2.1 Combinational Circuit

1.2.1 Half adder, Full adder, Parallel Adder/Sub tractor, Overflow detection.

1.2.2 Multiplexer : 2 to 1 Mux, 2 to 1 Mux as Universal gate

1.2.3 Demultiplexer: 1 to 2 DEMUX

1.2.4 BCD Encoder.

1.2.5 Decoder

2.2 Sequential Circuit

2.1.1 Basic Flip Flop Latches Clock Circuitry

2.1.2 SR Flipflop: Clocked SR FlipFlop, Level Triggered SR FlipFlop, Edge Triggered SR Flip Flop

2.1.3 D Flipflop, T Flipflop, JK FlipFlop,

2.1.4 Flip Flop Conversion : SR to D, JK to T, T to D, D to T, SR to JK Shift Registers

2.3.1 Logical Shift Left(LSL), Logical Shift Right(LSR),Rotate Shift Right(RSR), Rotate Shift Left(RSL), Airthmatic Shift Left(ASL), Arithmatic Shift Right(ASR)

2.3.2 Sequential Circuit:

2.3.2.1 Ring counter,

2.3.2.2 Synchronous Binary Counter,

2.3.2.3 Asynchronous Binary Counter

UNIT-III ANALOGUE ELECTRONICS

3.1 Analogue Electronics

3.1.1 Construction & Working Principle of Semiconductor

3.1.2 Construction & Working Principle of Junction Diode

3.1.3 Construction & Working Principle of Transistor

3.1.4 Construction & Working Principle of FET

Text Book : Computer Architecture & Logic Design : Thomas C Bratee

Reference : Computer System Architecture: M Maris Mano, PHI

APPLICATION DEVELOPMENT IN C

ADC (1.1.5)

UNIT –I OVERVIEW AND DECISION MAKING

1.1 INTRODUCTION TO 'C':

Modular Design, Programming Process, Programming States, Introduction To Features Of C Program, Declarations, Variables, Rules For Constructing Variable Names, Data Types, Values, Escape Sequence, Designing And Developing Programs In C, Directives, Comments, Header Files, Input/Output Operators, Printf() And Scanf()

1.2 SELECTION STATEMENTS

Defining Selection Statements, Conditions, Operators: Relational, Equality Operators, Logical Operators, Bitwise Operators
If-Else Statement, Else-If Construct, Switch Statement,

1.3 ITERATION STRUCTURE

Loops In C: Endless Loop, Pre test Loop, Post Test Loop, Accumulating And Counting, Counter Controlled Loops, The Break Statements, Goto Statement, Nested Loop, Comma Operator, Conditional Operator.

UNIT –II ARRAY, FUNCTION AND STRING

2.1 ARRAY

Index Variable Name, Defining an Array, Initialization, Sub Scripting, Array Elements in Memory, Bound Checking, Multidimensional Arrays,

2.2 STRINGS

What Are Strings, String Declaration And Initialization, String Assignments, String Manipulations, Character Classification, Character Conventions, Advantages Of Using Array.

2.3 FUNCTIONS

Define Function, Advantages Of Using Functions, Defining External Variables, Passing Values Between Functions, Return Statements, Scope Rules, Function Declaration And Prototyping, Calling Function By Value Or By Reference, Existing Functions, Recursion

UNIT- III POINTER, STRUCTURE AND FILE

3.1 POINTER

Pointer Notations, Pointer Arithmetic, Pointer To Pointer, Significance Of Pointer In Arrays, Pointer And 2d Arrays, Array Of Pointers,

3.2 STRUCTURE

What Is Structure, Array of Structures, Structures and Pointer, Unions

3.3 FILE HANDLING AND C PREPROCESSOR

File Identifiers, Buffered I/O, What Is File? Opening Files, Reading From a File, Closing a File, Writing To a File, Character Access to a File, Single Character Access, Moving the File Position Indicator, File House Keeping, Finding the End Of File, Using Argc and Argv. The C Preprocessor: Macro Expansion, File Inclusion, Conditional Compiler.

Text Book : Ansi C – E. Balagurusamy – BPB
C in Depth – S. Srivastav,
Ref : Let Us C – Y.R.Kartenkar – BPB

Practical

STANDARD SOFTWARE APPLICATION
SSA (1.1.6)

UNIT I OPERATING SYSTEM AND MS WORD

- 1.1 Operating System
  - 1.1.1 DOS(Disk Operating System)
  - 1.1.2 Window 2000
- 1.2 MS-Word
  - 1.2.1 Introduction to MS-Word
  - 1.2.2 Creating , Saving and Opening Document
  - 1.2.3 Editing Microsoft Word Document
    - 1.2.3.1 Different method of Selecting text, move and copy text
    - 1.2.3.2 Find and Replace
    - 1.2.3.3 Spelling and Grammar
  - 1.2.4 Formatting Text
    - 1.2.4.1 Change Appearance of the text
    - 1.2.4.2 Align Word & Paragraph
    - 1.2.4.3 Paragraph & Line Spacing
    - 1.2.4.4 Create Drop Cap
    - 1.2.4.5 Paragraph & Page Border
    - 1.2.4.6 Bullet & Numbering
    - 1.2.4.7 Change Case
  - 1.2.5 Printing & Page Setup
    - 1.2.5.1.1 Margin Setup
    - 1.2.5.1.2 Page Orientation Setup
    - 1.2.5.1.3 Header & Footer
    - 1.2.5.1.4 Print Preview
    - 1.2.5.1.5 Document Printing
  - 1.2.6 Graphics, Tables and Mail Merge
    - 1.2.6.1 Insert Graphics
    - 1.2.6.2 Present Information in Table
    - 1.2.6.3 Formatting a Table
    - 1.2.6.4 Mail Merge

UNIT II MICROSOFT EXCEL

- 2.1 Introduction
  - 2.1.1 Creating Saving and Opening Workbook
- 2.2 Editing & Formatting MS Excel Worksheet
  - 2.2.1 Editing & Deleting Data

2.2.2 Navigating within Worksheet

2.2.3 Selecting Cell, Row and Column

2.2.4 Insert, delete Cell, Row & Column

2.2.5 Adjust Column width & Row Height

2.2.6 Hide & Unhide Column Worksheet

2.2.7 Header & Footer

2.3 Writing Formula & using Function

2.3.1 Enter Formula

2.3.2 Write formula using relative & absolute cell address

2.3.3 Use formula auditing tool

2.3.4 Use of functions

2.4 Advance features of Excel

2.4.1 Conditional Formatting

2.4.2 Data Sorting, Data Filtering

2.4.3 Data Validation, Goal Seek, Subtotal

UNIT III MS POWER POINT AND MS ACCESS

3.1 MS Power Point

3.1.1 Introduction to Microsoft PowerPoint

3.1.1.1 Creating, saving and opening presentation

3.1.2 Working with slide

3.1.2.1 Entering text in slide

3.1.2.2 Inserting and deleting slides

3.1.2.3 Different type of view

3.1.2.4 Insert from another file

3.1.3 Changing the slide look

3.1.3.1 Set slide layouts

3.1.3.2 Change slide background colour

3.1.3.3 Change slide design

3.1.3.4 Insert header and footer

3.1.4 Slide show

3.1.4.1 Add transition

3.1.4.2 Add animation

3.1.4.3 Rehearse timings

3.1.4.4 Custom show

3.1.4.5 Action button

3.2 Microsoft Access

3.2.1 Table

3.2.2 View

3.2.3 Report

3.2.4 Forms

PRACTICAL

Programming using C' Language

PC (1.1.7)

As Per the Theory Syllabus ADC (1.1.5)

DISCRETE MATHEMATICS

DM (1.2.8)

UNIT I THE FOUNDATIONS

1.1 Introduction
- 1.1.1 Number Base
- 1.1.2 Column System
- 1.1.3 Conversion among the Bases
- 1.1.4 Operation of Number System
- 1.1.5 Storage of Number
- 1.1.6 Shifting Operations
- 1.1.7 Floating Point Representation
- 1.1.8 Errors and Accuracy

1.2 Logic, Rules of Inference
- 1.2.1 Method of Proof
- 1.2.2 Set
- 1.2.3 Relation
- 1.2.4 Function

UNIT II PROBABILITY & STATISTICS

2.1 Probability

2.2 Probability of Combined Events

2.3 Probability Spaces

2.4 Addition Law, Multiplication Law

2.5 Introduction to Statistics

2.6 Presentation of Statistical Data, Histogram, Frequency Polygons, Cumulative Frequency Distributions

2.7 Measure of Central Tendency

2.8 Dispersion and Variation

UNIT III COMBINATORY

3.1 Elementary Combinatory

3.2 Some Counting Principles

3.3 Recurrence Relations

3.4 Generating Functions

3.5 Techniques of Solving Recurrence Relations

Text Book

Discrete Mathematics and its Applications (TMH)

Ref. Book

Discrete Mathematics by Joe L. Mott, A. Kandel, T.P.Baker (PHI)

COMPUTER NETWORKS
CN (1.2.9)

UNIT I ESSENTIALS OF NETWORKING

1.1 Introduction to Networks

1.1.1 Overview of Networking

1.1.1.1 Need for Networking

1.1.1.2 Hardware and Software Components

1.1.2 Network Communication Standards

1.1.2.1 OSI Reference Model

1.1.2.2 TCP/IP Reference Model

1.2 Network Topologies

1.2.1 Basic Topology

1.2.1.1 Bus Topology

1.2.1.2 Ring Topology

1.2.1.3 Star Topology

1.2.2 Complex Topology

1.2.2.1 Mesh Topology

1.2.2.2 Hybrid Topology

UNIT II LOCAL AREA NETWORKS

2.1 LAN Components

2.1.1 LAN Cables and Connectors

2.1.1.1 Cables

2.1.1.2 Coaxial Cables

2.1.1.3 Twisted Pair Cables

2.1.1.4 Optical Fiber Cables

2.1.1.5 Connectors

2.1.2 LAN Devices

2.1.2.1 Repeaters

2.1.2.2 Hubs

2.1.2.3 Switches

2.1.2.4 Network Interface Cards

2.2 LAN Protocols

2.2.1 Lower-Layer Protocols

2.2.1.1 ARCnet

2.2.1.2 Ethernet

2.2.1.3 Token Ring

2.2.1.4 FDDI

2.2.2 Middle-Layer Protocols

2.2.2.1 TCP/IP

2.2.2.2 IPX/SPX

2.2.2.3 NetBEUI

2.2.3 Higher-Layer Protocols

2.2.3.1 HTTP

2.2.3.2 FTP

2.2.3.3 SMTP

UNIT III WIDE AREA NETWORKS

3.1 Network Addressing

1.1.1 Introduction to Network Addressing

1.1.2 TCP/IP Addressing Scheme

1.1.2.1 Components of IP Address

1.1.2.2 IP Address Classes

3.2 Introduction to WAN

3.2.1 Overview of WAN

3.2.2 WAN Connectivity Options

3.2.3 POTS

3.2.4 Leased Lines

3.2.5 ISDN

3.2.5.1 VSAT

3.2.5.2 Microwave

3.2.5.3 Radio

3.2.5.4 Infrared

3.2.6 WAN Devices

3.2.6.1 Bridges

3.2.6.2 Routers

3.2.6.3 Gateways

Text Book

Basics of Networking: PHI / NIIT

Ref. Book

Data Communication and Networking by B. Foruzan (TMH)

PROGRAMMING LOGIC TECHNIQUE
PLT (1.2.10)

UNIT I SYSTEM LIFE CYCLE

1.1 Introduction
1.2 What Is A System?
1.3 Stages of System Life Cycle
1.4 Elements of System Life Cycle
- 1.4.1 Initial Study
- 1.4.2 System Analysis and Design
- 1.4.3 Program Design
- 1.4.4 Development Testing
- 1.4.5 Implementation
- 1.4.6 Live Running and Maintenance
- 1.4.7 Review.

UNIT II SYSTEM ANALYSIS AND DESIGN

2.1 Introduction
2.2 System Run Chart
2.3 System Flow Chart
2.4 Data Flow Diagram (DFD)
2.5 Data Dictionary
2.6 Flow Chart

UNIT III DESIGN TOOLS

3.1 Introduction
3.2 There Structure Constructs
3.3 Sequence Constant, Selection Constructed, Stepwise Refinement, and Design Tools (Pseudo Code):
- 3.3.1 Introduction
- 3.3.2 Rules for Pseudo Code
- 3.3.3 Advantages in Using Pseudo Code
- 3.3.4 Flow Chart Representation

3.4 Design Tools (Decision Table)
- 3.4.1 Introduction
- 3.4.2 Basic Structure of A Design Table
- 3.4.3 Advantages of Using Decision Tables
- 3.4.4 Converting Decision Table to Pseudo Code.

Text Book:

1. Programming Logic and Technique, Baluja

DATA STRUCTURE
DS (1.2.11)

UNIT I INTRODUCTION TO DATA STRUCTURE

1.1 Primitive and Non-Primitive Data Structure

1.2 Introduction to Algorithm Designing

1.3 Dynamic Memory Allocation

1.4 Stack

1.5 Abstract Data Type

1.6 Features of Stack and its Applications (Algorithm Only)

- 1.6.1 In Fix
- 1.6.2 Post Fix
- 1.6.3 Pre Fix Notation (Polish Notation)

1.7 Static Representation of Stack

1.8 Link Implementation of Stack

1.9 Evaluation of Post Fix Notation

UNIT II LINKED LIST

2.1 Introduction to One Way Linked List (Algorithm Only)

- 2.1.1 Insertion, Deletion in Linked List(Only at begining and end)
- 2.1.2 Double Linked List(Algorithm only)
- 2.1.3 Circular Linked List(Algorithm only)
- 2.1.4 Polynomial Implementation (Use)

2.2 Introduction to Queue (Algorithm Only)

- 2.2.1 Static Representation of Queue
- 2.2.2 Link Implementation of Queue

UNIT III TREE

3.1 Introduction to Tree (Algorithm Only)

- 3.1.1 Binary Tree
- 3.1.2 Traversal of Tree

3.2 Extended Binary Tree, Complete Binary Tree, Strictly Binary Tree

3.3 Searching and Sorting

- 3.3.1 Binary Search, Linear Search (Programs and Algorithm)
- 3.3.2 Bubble Sort, Quick Sort, Merge Sort, Heap Sort (Algorithm)

Text Book

1) Data Structure In C By R.C. Patel
2) Depth in C by Shrivastava

Reference Book

1) Data Structure in C – Schaum Series

DATABASE MANAGEMENT SYSTEM
DBMS (1.2.12)

UNIT 1 INTRODUCTION TO DATABASE

- 1.1 Concept of Database
- 1.2 Basic Terminologies
- 1.3 Data Base Architecture
- 1.4 Database Development Process
- 1.5 Basics of Relational Database
- 1.6 Database Modeling
- 1.7 Entities and Relationship
- 1.8 E-R Diagram
  - 1.8.1 Notation
  - 1.8.2 Drawing E-R Diagram
- 1.9 Object Oriented Model
  - 1.9.1 Hierarchical Model
  - 1.9.2 Network Model
  - 1.9.3 Relational Model

UNIT 2 NORMALIZATION

- 2.1 Introduction
- 2.2 Terminologies
- 2.3 Notations
- 2.4 Steps in Normalization
- 2.5 1st Normal Form (NF)
- 2.6 2nd NF
- 2.7 3rd NF

UNIT 3 PHYSICAL DATABASE DESIGN

- 3.1 Database Administrator
  - 3.1.1 Function of DBA
- 3.2 Concurrency Control
- 3.3 Database Security
- 3.4 Database Recovery
  - 3.4.1 Data Integrity

Ref. Book:

1. DBMS- Korth, Sudarshan, TMG
2. DBMS- Bipin Desai, Galgotia
3. DBMS- Navathe, Addision- Wishley

PRACTICAL

Networking and Internet

NI (1.2.13)

As per syllabus of CN (1.2.9)

PROJECT

PJ (1.2.14)

MANAGERIAL ECONOMICS
ME (2.3.15)

UNIT I INTRODUCTION

1.1 Managerial Economics

1.1.1 Meaning, Scope and its Role

1.2 Firm

1.2.1 Meaning and its objective

1.3 Analysis of demand & demand forecasting

1.3.1 Meaning and types of demand

1.3.2 Elasticity of demand and its measurement

1.3.3 Demand forecasting and techniques of forecasting demand

UNIT II PRODUCTION AND COST ANALYSIS

2.1 Meaning of production

2.1.1 Production function, Returns to scale

2.1.2 Cobb-Douglas production function

2.1.3 Least Cost combination of factor inputs

2.2 Cost

2.2.1 Concepts, Cost output relationship

2.2.2 Short run and long run cost functions.

2.2.3 Economies and diseconomies of scale

UNIT III PRICING AND CAPITAL BUDGETING

3.1 Pricing under different market structure

3.2 Perfect competition

3.3 Monopoly, Monopolistic competition, Oligopoly

3.4 Capital Budgeting

3.4.1 Introduction

3.4.2 Prerequisite of capital budgeting

3.4.3 Determination of optimal level of capital

3.4.4 Investment decision under certainty (Pay-Back period method, net present value method, internal rate of return criteria)

3.4.5 Sources and cost of capital

Ref book:

1. Managerial Economics, D.N. Dwibedi, Vikash Pub
2. Managerial Economics, Agrawal, Vindra Pub.
3. Managerial Economics, Maheswari and

PROGRAMMING IN C++
C++ (2.3.16)

UNIT-I INTRODUCTION TO OBJECT ORIENTED PROGRAMING

1.1 Concept of OOP, Features of OOPs, Advantages of OPP, Difference; between OOP and structure oriented programming. Use of insertion operator (<<) and extraction operator(>>) .Use of cout and cin. Dynamic memory allocation, use of manipulators (setw).Variable aliasing, scope resolution operator.

1.2 Function: Components of function call by value, call by reference, default arguments, function overloading and its advantages, Template and its uses.

UNIT-II CLASS, POLYMORPHYSIM AND INHERITANCE

2.1 Introduction to class, concept of data member and member function, member function insides the class and outside the class, constructor and its use, overloaded constructor, destructor.

2.2 Operator overloading, operator overloading restriction, overloading of unary, binary, comparison operator,

2.3 Introduction to Inheritance and its advantages

- 2.3.1 Single Inheritance
- 2.3.2 Multiple inheritance
- 2.3.3 Multilevel inheritance
- 2.3.4 Hierarchical Inheritance.

2.4 Friend function and its use.

UNIT-III FILE HANDLING

3.1 Introduction to Array Single and 2D array, concept of structure, difference between structure and class.

3.2 Introduction to pointer, this pointer,

3.3 Introduction to file, of stream, reading and writing to file, use of seekg (), Tellg (), closing of file.

Text Book : Object Oriented C++ - E. Balagurusamy – BPB

Ref Book: Complete Reference – C++ - TMH

COMPUTER ORGANIZATION AND OPERATING SYSTEM
CO & OS (2.3.17)

UNIT I BASIC STRUCTURE OF COMUTER HARDWARE AND SOFTWARE

1.1 System Functional units
1.2 Basic operational concepts of a System
1.3 Bus structure
1.4 Software
1.5 Performance
1.6 Distributed computing
1.7 Addressing methods
    1.7.1 Basic concepts
    1.7.2 Memory location, addresses
    1.7.3 Main memory operation

UNIT II MIPS ADDRESSING, ALU AND PROCESSOR DATA PATH CONTROL

2.1 Addressing in branches and jumps
2.2 MIPS addressing Modes
2.3 MIPS assembly language
2.4 Decoding MIPS assembly language to Machine language
2.5 Arithmetic for computers
    2.5.1 Introduction
    2.5.2 Signed and unsigned numbers
    2.5.3 Addition and subtraction
    2.5.4 Logical operation
    2.5.5 Construction of ALU
2.6 Processor data Path and Control
    2.6.1 Introduction
    2.6.2 Building a data path
    2.6.3 A simple implementation scheme
    2.6.4 Creating a single data path
    2.6.5 Data path for I-type & R-type instruction
    2.6.6 The ALU control
    2.6.7 Data path for basic instruction (Load/ Store word, ALU operation and Branches)
    2.6.8 The simple data path with the control Unit
    2.6.9 Operation on data path
    2.6.10 Multi-cycle implementation of data path

2.6.10.1 Introduction

2.6.10.2 High Level View of Multi-Cycle data Path

2.6.11 Multiprocessor

2.6.11.1 Introduction

2.6.11.2 Multiprocessor connected by single bus

2.6.11.3 Multiprocessor connected by network clusters

UNIT III OPERATING SYSTEM CONCEPTS

3.1 Operating system

- 3.1.1 Introduction
- 3.1.2 What is an operating system
- 3.1.3 Operating system structure
  - 3.1.3.1 System components
  - 3.1.3.2 Operating system services
  - 3.1.3.3 System calls
- 3.1.4 Process
  - 3.1.4.1 Process concept
  - 3.1.4.2 Process scheduling
  - 3.1.4.3 Operation on process
  - 3.1.4.4 Co-operating process
  - 3.1.4.5 Threads
  - 3.1.4.6 Inter process communication

3.2 CPU Scheduling

- 3.2.1 Basic concepts
- 3.2.2 Scheduling criteria
- 3.2.3 Scheduling algorithm
  - 3.2.3.1 FCFS
  - 3.2.3.2 SJF
  - 3.2.3.3 RR
  - 3.2.3.4 Multi Level queue
  - 3.2.3.5 Multi level feedback queue
  - 3.2.3.6 Priority Level
- 3.2.4 Multiprocessor Scheduling

Text Book:

1. Computer Organization – Hamacher, TMH
2. Computer Organization and Design, D.A Patterson & J.L. Hennessy- Elsivier
3. Operating System Concept, Galvin, Silverschtz,Willy Eastern

VISUAL BASIC.Net
VB.Net (2.3.18)

UNIT I INTRODUCTION TO .Net

- 1.1 Introduction
  - 1.1.1 .Net framework and VB.Net
  - 1.1.2 Building User Interface Web Forms
  - 1.1.3 Introduction to OOPs
- 1.2 Application Architecture in .Net
  - 1.2.1 .Net Role
  - 1.2.2 Two Tire/Three Tire/N Tier/ Enterprise
- 1.3 Introduction to .Net Framework
  - 1.3.1 What is .Net Framework?
  - 1.3.2 Important Classes, Console, environment, Collection
  - 1.3.3 Stream and Files, Graphics Classes

UNIT II USING VB.Net

- 2.1 Working with VB.Net
  - 2.1.1 Building VB.Net Application
  - 2.1.2 Creating Forms, Event Handling
  - 2.1.3 VB.Net Controls
  - 2.1.4 Web Programming Model
  - 2.1.5 Creating Standers Web Forms
  - 2.1.6 Validators
  - 2.1.7 Menus
- 2.2 Programming with VB.Net
  - 2.2.1 Variables, Operators, Arrays, subroutines, Functions
  - 2.2.2 Controlling Flow-Control & Looping
  - 2.2.3 Constructs, File Handling
  - 2.2.4 Introduction to OOPS Concept
  - 2.2.5 Class, Object, Inheritance
  - 2.2.6 Designing Application using OOP
- 2.3 Working with Object
  - 2.3.1 Creating Object, Overloading, Inheritance

UNIT III INTRODUCTION TO ADO.Net AND XML

- 3.1 Introduction to Database
  - 3.1.1 Accessing data with.Net
  - 3.1.2 ADO.Net
  - 3.1.3 Data binding with windows forms
- 3.2 XML
  - 3.2.1 Working with XML
  - 3.2.2 Document Object Model, Reader/Writer
- 3.3 Deploying Applications
  - 3.3.1 Creating Setup, Documentation
  - 3.3.2 Multi project Deployment

Text Book:

1. Visual Basic.Net, Shirish Chavan, Pearson

Ref Book:

1. An Introduction to Programming using Visual Basic.Net, 5th Edition, PHI
2. Visual Basic.Net A Beginners Guide, Kant, TMCH
3. Visual Basic.Net, Wrox Publication

SOFTWARE TESTING
ST (2.3.19)

UNIT I INTRODUCTION

1.1 What is software testing and why it is so hard?

1.2 Error, fault, failure

1.3 Limitation of testing

1.4 No absolute proof of correctness

1.5 Functional testing

1.5.1 Boundary value analysis

1.5.2 Equivalence class testing

UNIT II STRUCTURAL TESTING AND OBJECT ORIENTED TESTING

2.1 Path testing

2.2 Data Flow testing

2.3 Object oriented integration and system testing

2.4 Risk analysis, Regnession Testing

UNIT III TESTING ACTIVITIES AND TOOLS

3.1 Unit testing, levels of testing, integration testing

3.2 System testing, debugging

3.3 Characteristics of Modern Tools, Static Testing Tools, Dynamic Testing Tools

Text Book :

1. William Perry "Effective Methods for Software Testing"- John Wiely & Sons

2. Cem Kaner, Jack Falk – Testing Computer Software – 2nd Edition

3. Boris Beizer – "Software Testing Technique" – 2nd Edition-

NETWORK INFRASTRUCTURE ADMINISTRATION
NA (2.3.18)

UNIT I INTRODUCTION TO WINDOWS SERVER AND TCP/IP

1.1. Understanding Windows Server 2003 Networks
- 1.1.1. Understanding Network Infrastructures
- 1.1.2. Networking with Default Components in Windows Server 2003
- 1.1.3. Extending a Windows Server 2003 Network Infrastructure

1.2. Understanding TCP/IP
- 1.2.1. Understanding TCP/IP
- 1.2.2. Understanding IP Addressing
- 1.2.3. Subnetting and Supernetting IP Networks
- 1.2.4. Installing and Configuring TCP/IP

UNIT II TCP/IP CONNECTIONS AND DNS CONFIGURATION

2.1. Monitoring and Troubleshooting TCP/IP Connections
- 2.1.1. Analyzing Traffic Using Network Monitor
- 2.1.2. Troubleshooting TCP/IP Connections

2.2. Configuring DNS Servers and Clients
- 2.2.1. Understanding Name Resolution in Windows Server 2003
- 2.2.2. Understanding DNS in Windows Server 2003 Networks
- 2.2.3. Deploying DNS Servers
- 2.2.4. Configuring DNS Clients

UNIT III IMPLEMENTING, MONITORING AND TROUBLESHOOTING DNS

3.1. Implementing a DNS Infrastructure
- 3.1.1. Configuring DNS Server Properties
- 3.1.2. Configuring Zone Properties and Transfers
- 3.1.3. Configuring Advanced DNS Server Properties
- 3.1.4. Creating Zone Delegations
- 3.1.5. Deploying Stub Zones

3.2.Monitoring and Troubleshooting DNS
- 3.2.1. Using DNS Troubleshooting Tools
- 3.2.2. Using DNS Monitoring Tools

Text Book:-

(i) MCSA/MCSE Self-Paced Training Kit (Exam 70-291): Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure, Second Edition by J.C. Mackin and Ian McLean

Reference Books:-

(i) Windows Server 2003 Network Infrastructure Implementing and Maintaining (Exam 70-291) (Prentice Hall Certification Series) by Kenneth C. Laudon

(ii) Mike Meyers' MCSA .Managing a Microsoft Windows Server 2003 Network Environment Certification Passport (Exam 70- 291) by Walter Glenn, Mike Simpson, and Jason Zandri

(iii) 70-291: MCSE Guide to Managing a Microsoft Windows Server 2003 Network, Enhanced by Jason Eckert, M. John Schitka, and Brian W. McCann

ADVANCED NETWORK INFRASTRUCTURE ADMINISTRATION
AN (2.3.19)

UNIT I INSTALLING, CONFIGURING AND TROUBLESHOOTING DHCP

1.1. Configuring DHCP Servers and Clients
- 1.1.1. Configuring the DHCP Server
- 1.1.2. Managing DHCP in Windows Networks
- 1.1.3. Configuring DHCP Servers to Perform DNS Updates

1.2. Monitoring and Troubleshooting DHCP
- 1.2.1. Analyzing DHCP Traffic
- 1.2.2. Monitoring DHCP Through Audit Logging
- 1.2.3. Troubleshooting DHCP

UNIT II MANAGING ROUTING AND REMOTE ACCESS SERVICE

2.1. Routing with Windows Server 2003
- 2.1.1. Configuring Windows Server 2003 for LAN Routing
- 2.1.2. Configuring Demand-Dial Routing
- 2.1.3. Configuring NAT
- 2.1.4. Configuring and Managing Routing Protocols
- 2.1.5. Configuring Packet Filters

2.2. Configuring and Managing Remote Access
- 2.2.1. Configuring Remote Access Connections
- 2.2.2. Authorizing Remote Access Connections
- 2.2.3. Implementing VPNs
- 2.2.4. Deploying the Internet Authentication Service

UNIT III MANAGING AND MAINTAINING THE COMPLETE NETWORK

3.1. Managing Network Security
- 3.1.1. Implementing Secure Network Administration Procedures
- 3.1.2. Monitoring Network Protocol Security
- 3.1.3. Troubleshooting Network Protocol Security

3.2. Maintaining a Network Infrastructure
- 3.2.1. Monitoring Network Performance
- 3.2.1. Troubleshooting Internet Connectivity

Text Book:-

(i) MCSA/MCSE Self-Paced Training Kit (Exam 70-291): Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure, Second Edition by J.C. Mackin and Ian McLean

Reference Books:-

(i) Windows Server 2003 Network Infrastructure Implementing and Maintaining (Exam 70-291) (Prentice Hall Certification Series) by Kenneth C. Laudon

(ii) Mike Meyers' MCSA .Managing a Microsoft Windows Server 2003 Network Environment Certification Passport (Exam 70- 291) by Walter Glenn, Mike Simpson, and Jason Zandri

(iv) 70-291: MCSE Guide to Managing a Microsoft Windows Server 2003 Network, Enhanced by Jason Eckert, M. John Schitka, and Brian W. McCann

PRACTICAL

VB.Net PROGRAMMING
VB.Net (2.3.20)

As per the theory Syllabus VB.Net (2.3.18)

PRACTICAL

NETWORK INFRASTRUCTURE ADMINISTRATION
NA (2.3.20)

As per the Theory Syllabus NA (2.3.18)

MS SQL SERVER

MSSQL (2.3.21)

UNIT I SQL SERVER OVERVIEW

1.1 SQL server Architecture, Working with SQL Server, Overview of T-SQL, Elements T-SQL, Running T-SQL Commands

1.2 Creating Database, Modifying & deleting database, Creating, modifying and deleting Tables. Data Integrity, Types of data Integrity, Using Constraints and Rules.

1.3 Planning and Creating Indexes, Index Architecture.

UNIT II QUERY, VIEW, JOINING

2.1 Combining data from multiple tables, Combining multiple result sets, creating table from result set

2.2 Introduction to Queries, nested Queries, Using exist, not exist, like , not like, in, between and other functions.

2.3 Summarising data, using aggregate function, group by fundamentals, listing top values, using compute and compute by key word.

2.4 What is View? Defining view and advantage of View.

UNIT III TRIGGERS, PROCEDURE & CURSOR

3.1 What is a Trigger? Defining Triggers, Examples of triggers

3.2 Implementing user defined procedures. Creating, Executing Procedures, Stored Procedure

3.3 What is Cursor? Declaring, opening, Fetching and closing a cursor.

Text Book :

1. MS SQL Server in Record Time – BPB- Champan
2. Ref : Mastering SQL Server – Rickpall – BPB

OOPs in JAVA

OJ (2.4.22)

UNIT I INTRODUCTION TO JAVA

1.1 Object oriented concept, Java Evolution (History and features of Java.

1.2 How java differ from C and C++ Java Tokens, identifiers, JVM, constant variables and data types,(Primitive and non primitive Data type),

1.3 Simple Java program(concept of class, static, main method)Decision making and Branching , loop(jumping out of a loop), labeled loops,

1.4 concept of package, input package,

1.5 creation of objects (Dynamic creation) using now Java methods. Using java methods, Invoking methods, Types of methods, methods overloading, constructor, overloading of constructors, finalize methods,

UNIT II PACKAGE AND EXCEPTION HANDLING

2.1 Array: Creating an array, program or 1D and 2D array, string array, string,

2.2 Buffer class, wrapper class,

2.3 Interface, Defining Interface Extending Interface, Implementing Interface, Java API package,

2.4 Multithreaded programming: creating threads,
Life cycle of thread (Newborn, Run, Block, Dead),stopping and Blocking a thread,

2.5 Exception: Types of error, compile time error, runtime error, syntax for exception Handing, Applet programming: Local and remote applets, How applet differ from applications, life cycle of applet,

2.6 Introduction to HTML (only). Designing web page.

UNIT III GRAPHICS AND DATABASE CONNECTIVITY

3.1 Graphics programming: Introduction, The graphics class, lines and rectangles, circles and Ellipses, Drawing Arcs, polygons, concept of streams, 3.2 JDBC ODBC bridge, 2 tier method, JDBC ODBC connectivity .Using different package, Java, SQL package,

Text Book :

1. OOPs in Java – E.Balagurusamy – BPB
2. Complete Reference - TMH

QUANTITATIVE TECHNIQUE
QT (2.4.23)

UNIT I CALCULUS, MATRICES AND TRANSFORMATION

1.1 Calculus

1.1.1 Limit

1.1.2 Continuity

1.1.3 Differentiation

1.1.3.1 Derivative and Rules of Differentiation

1.1.3.2 Problems of Maxima and Minima in Single Variable Function

1.1.3.3 Multi Value Function, Partial Derivatives and Euler's Theorem

1.1.4 Indefinite integral, Definite integral

1.1.5 Area under the curve

1.2 Matrices & Transformation

1.2.1 Matrices

1.2.1.1 Definition

1.2.1.2 Matrix algebra

1.2.1.3 Solution by system's equation

1.2.2 Transformation

1.2.2.1 Translation, Enlargement, Reflection, Rotation, Shearing, Stretching

UNIT II INVENTORY CONTROL

2.1 Introduction

2.2 The inventory decision

2.3 Cost associated with inventories

2.4 Factors affecting inventory control

2.5 Economic order quantity

UNIT III NETWORK SCHEDULING BY PERT/CPM

3.1 Introduction

3.2 Network and basic components

3.3 Logical sequencing, Rules for network construction

3.4 Critical path analysis

3.5 Probability consideration in PERT

3.6 Distinction between PERT/CPM

Ref Book:

1. Higher Secondary Math(Vol 1 & 2)
2. Operation Research, Kanti Swaroop
3. Operation Research, S. Kalavathy
4. Business Mathematics, D.R Agarwal, Brinda Pub.

SOFTWARE ENGINEERING
SE (2.4.24)

UNIT I FUNDAMENTALS OF SOFTWARE ENGINEERING

1.1 The Evolution of Software

1.2 Software crisis

1.3 Sift Engineering paradigms

1.3.1 Classical waterfall model

1.3.2 Iterative waterfall model

1.3.3 Prototyping Model

1.3.4 Evolutionary model

1.4 Requirement analysis fundamentals:

1.4.1 The analyst

1.4.2 Problem in requirement Analysis

1.4.3 Communication, Analysis metals, Data structure oriented method

1.4.4.2 Formal specification

UNIT II SOFTWARE DESIGN

2.1 Software design fundamentals

2.2 Criteria for Good design

2.3 Data design,

2.4 Jackson structured Programming (JSP)

2.4.1 Characteristics of JSP, Advantages of JSP, Steps in JSP

UNIT III SOFTWARE QUALITY ASSURANCE & TESTING STRATEGIES

3.1 Software quality Assurance, Software quality factors.

3.2 Formal Technical review

3.3 Software reliability

3.4 Software testing.

3.4.1 Testing objectives

3.4 2Information flow in testing

3.4.3 A software testing strategy :

3.4.3.1 Unit testing

3.4.3.2 Integration testing

3.5 Software Testing

3.5.1 White Box testing, Black box testing, Automated testing

3.5.4 Debugging

Text Book :

1. Software Engineering – Roger R Pressmen – TMH

LINUX OPERATING SYSTEM
LOS (2.4.25)

UNIT I LINUX OVERVIEW

1.1 Introduction
1.2 History
1.3 H/W requirements
1.4 Linux Vs Other O.S
1.5 Linux as Open Source
1.6 Features of Linux
1.7 Linux Distributions
1.8 Introduction to GNOME, Panel Applet
1.9 Detailed Installation procedure
    1.9.1 Partitioning Disk
    1.9.2 Using Disk Druid
    1.9.3 Installing LILO
    1.9.4 Setting Root Password, Selecting Package

UNIT II GNOME & TERMINAL

2.1 GNOME as file Manager
2.2 Launching application from GNOME
2.3 Mounting and Unmouting File
2.4 Starting terminal
2.5 File and directory commands
2.6 File permission and ownership
2.7 I/O redirection
2.8 Text Editor
2.9 Vi text editor

UNIT III SHELL PROGRAMMING

3.1 Linux Shell
3.2 Creating & Running Shell Programme
3.3 Shell Variables and Shell Environment
3.4 Test Commands
3.5 Quotation Marks
3.6 Selection and Iteration Statements

Text Book:

1. Complete Reference Linux - TMH

PROGRAMMING IN C#
C# (2.4.26)

UNIT I INTRODUCTION TO C#

1.1 Introduction .NET, Its Feature.
1.2 What is C#. The Development C#. What can I do with C#. Console Application, Windows Application. Windows Controls, ASP .NET projects, Web Controls, Web Service, .NET Components.
1.3 Structure of C# programming.
1.4 Elements of C# : Data types, The Object Type, Value and reference types
1.5 Introduction to VS.NET IDE.

UNIT II C# SYNTAX

2.1 Statements, Programme control : selection, iteration and jumping statements,
2.2 Console I/O : Console Input, Console Output, Methods,
2.3 Implementing encapsulation,
2.4 Implementing polymorphism, Overloading methods, constructors, operators
2.5 Implementing inheritance, Dynamic polymorphism,
2.6 Handling Errors, Exception Classes
2.7 The Object Classes, Boxing and UnBoxing.
2.8 Interface, Properties.

UNIT III ADVANCE C# CONCEPTS

3.1 Namespaces. Base Classes, the Win CV Tool.
3.2 Windows applications.
3.3 Simple application: Adding controls,
3.4 Event handling.
3.5 How ADO.NET Works, The object model.
3.6 Benefits of ADO.NET.
3.7 The DataSet, The managed providers, ADO.NET.
3.8 Reading Database Using the SQL Manager provider.

Text Book:

1. Programming in C# - Wrox publication
2. Complete Reference C#, TMH

DATA COMMUNICATION ENGINEERING

DCE (2.4.25)

UNIT I INTRODUCTION TO DATA COMMUNICATION NETWORKING

- 1.1 Introduction
- 1.2 Fundamental concepts
  - 1.2.1 Basic idea
  - 1.2.2 Practical data communication
- 1.3 Data communication
- 1.4 Protocols
- 1.5 Standards
- 1.6 Standard organization
  - 1.6.1 Standard creative committee
  - 1.6.2 Forums
  - 1.6.3 Regularity agencies
- 1.7 Analog & digital signals
- 1.8 Bandwidth of a signal & a medium
  - 1.8.1 Introduction
  - 1.8.2 Amplitude, frequency, phase
  - 1.8.3 The data transmission rate and the bandwidth

UNIT II MODES OF DATA TRANSMISSION AND MULTIPLEXING

- 2.1 Introduction
- 2.2 Parallel and serial communication
  - 2.2.1 Parallel communication
  - 2.2.2 Serial communication
- 2.3 Asynchronous, synchronous and Isoynchronous communication
  - 2.3.1 Asynchronous communication
  - 2.3.2 Synchronous communication
  - 2.3.3 Isosynchronous communication
- 2.4 Simplex, Half Duplex & Full Duplex Communication
  - 2.4.1 Simplex communication
  - 2.4.2 Half Duplex communication
  - 2.4.3 Full Duplex communication
- 2.5 Multiplexing
- 2.6 Type of multiplexing
  - 2.6.1 Frequency division multiplexing (FDM)
  - 2.6.2 Time division multiplexing
- 2.7 FDM Vs TDM
- 2.8 Transmission Errors detection & correction
  - 2.8.1 Introduction

2.8.2 Error classification
2.8.2.1 Delay distortion
2.8.2.2 Attenuation
2.8.2.3 Noise
2.8.3 Types of errors
2.8.4 Error detection
2.8.4.1 Vertical redundancy check & parity Check
2.8.4.2 Longitudinal Redundancy Check (LRC)
2.8.4.3 Cyclic Redundancy Check (CRC)
2.8.5 Recovery from errors
2.8.5.1 Stop & wait method
2.8.5.2 Go Back method
2.8.5.3 Sliding window method

UNIT III INTERNETWORKING CONCEPTS AND INTERNET ACCESS

3.1 Introduction
3.2 Internetworking
3.3 Problems in internetworking
3.4 Incompatibility issues
3.5 Virtual network
3.6 Internetworking device
3.6.1 Repeater, Bridges, Routers, Gateways, Brouters
3.7 Introduction to internet access
3.7.1 Dialup access
3.7.2 SLIP
3.7.3 PPP
3.8 Leased lines
3.9 DSL
3.9.1 DSL Basic
3.9.2 DSL Requirement
3.9.3 Carrying voice & data using DSL
3.10 Cable Modem

Text Book:

1. Data Communication and Networks, A.S. Godbole, TMH

WINDOWS ACTIVE DIRECTORY SERVICES
WD (2.4.26)

UNIT I PLANNING AND IMPLEMENTING AN ACTIVE DIRECTORY

1.1. Introduction to Active Directory
- 1.1.1. Active Directory Overview
- 1.1.2. Understanding Active Directory Concepts and Administration Tasks
- 1.1.3. Planning the Active Directory Infrastructure Design

1.2. Installing and Configuring Active Directory
- 1.2.1. Preparing for Active Directory Installation
- 1.2.2. Installing and Removing Active Directory
- 1.2.3. Verifying Active Directory Installation
- 1.2.4. Troubleshooting Active Directory Installation and Removal

1.3. Administering Active Directory
- 1.3.1. Using Active Directory Administration Tools
- 1.3.2. Customizing MMCs
- 1.3.3. Backing Up Active Directory
- 1.3.4. Restoring Active Directory

UNIT II MAINTAINING THE ACTIVE DIRECTORY COMPONENTS

2.1. Installing and Managing Domains, Trees and Forests
- 2.1.1. Creating Multiple Domains, Trees, and Forests
- 2.1.2. Renaming and Restructuring Domains and Renaming DCs
- 2.1.3. Managing Operations Master Roles
- 2.1.4. Managing Trust Relationships

2.2. Configuring Sites and Managing Replication
- 2.2.1. Understanding Sites and Replication
- 2.2.2. Configuring Sites
- 2.2.3. Configuring Intersite Replication
- 2.2.4. Configuring Global Catalog Servers
- 2.2.5. Configuring Application Directory Partitions
- 2.2.6. Monitoring and Troubleshooting Replication

2.3. Implementing an OU Structure
- 2.3.1. Understanding OUs
- 2.3.2. Creating an OU Structure
- 2.3.3. Administering OUs

UNIT III ADMINISTERING USERS, GROUPS AND AD OBJECTS

3.1. Administering User Accounts
- 3.1.1. Understanding User Accounts
- 3.1.2. Creating User Accounts
- 3.1.3. Managing User Profiles and Home Folders
- 3.1.4. Maintaining User Accounts

3.2. Administering Groups
    3.2.1. Understanding Groups
    3.2.2. Creating and Administering Groups
    3.2.3. Administration Strategies

3.3. Administering Active Directory Objects
    3.3.1. Locating Active Directory Objects
    3.3.2. Controlling Access to Active Directory Objects
    3.3.3. Delegating Administrative Control of Active Directory Objects

Text Book:-

(i) MCSE Self-Paced Training Kit (Exam 70-294): Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure, Second Edition by Jill Spealman, Kurt Hudson, Melissa Craft, and Content Master

Reference Books:-

(i) MCSA/MCSE 70-294 Exam Cram: Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure (2nd Edition) (Exam Cram 2) by Will Willis and David Watts
(ii) MCSE Self-Paced Training Kit (Exams 70-290, 70-291, 70-293, 70-294): Microsoft Windows Server 2003 Core Requirements, Second Edition by Dan Holme, Orin Thomas, J.C. Mackin, and Ian McLean
(iii) MCSE Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure Exam Cram 2 (Exam Cram 70-294)

PRACTICAL

LINUX OPERATING SYSTEM
LOS (2.4.27)

As per the Theory Syllabus LOS (2.4.25)

PRACTICAL

WINDOWS ACTIVE DIRECTORY SERVICES
WD (2.4.27)

As per the Theory Syllabus WD (2.4.25)

PRACTICAL

PROJECT

PJ (2.4.28)

ORGANISATIONAL BEHAVIOUR
OB (3.5.29)

UNIT I NATURE, SCOPE & THEORY OF OB

1.1 Nature and scope of OB

- 1.1.1 Concept of organization
- 1.1.2 Features of organization
- 1.1.3 Types of organization
- 1.1.4 Organizational goals
- 1.1.5 Individual and organizational goals

1.2 Organizational theory

- 1.2.1 Taylor's Scientific theory
- 1.2.2 Henry Fayol's process theory
- 1.2.3 Human relations approach behaviour approach
- 1.2.4 System approach and contingency approach

UNIT II ORGANIZATIONAL STRUCTURE AND DESIGN

2.1 Principles of Organiastion
2.2 Line organization
2.3 Functional organization
2.4 Line and staff organization
2.5 Matrix organization
2.6 Virtual organization

UNIT III MOTIVATION

3.1 Maslow's need hierarchy
3.2 Herzberg two factor theory
3.3 McClelland's need theory leadership
3.4 Theories of leadership

- 3.4.1 Trait theory
- 3.4.2 Behaviour theory
- 3.4.3 Managerial grid
- 3.4.4 Situational theory
- 3.4.5 Fred Fiedler's contingency model

Text book:

1. Organization Behaviour, L.M. Prsad, S.P. Robbins
2. Organization Behaviour, Fred Luthans
3. Organization Behaviour, Fred John, W.Newstrom, K. Davis

COMPUTERISED ACCOUNTING
CA (3.5.30)

UNIT I

1.1 Concept of accounting

1.2 Nature of accounting, users of accounting

1.3 Accounting concepts and principles

1.4 Journals

1.5 Golden rules of accounting

1.6 Ledger

1.7 Trial balance

1.8 Final accounts trading

1.9 Account

1.10 Profit and loss account, Balance sheet

UNIT II

2.1 Cost accounting, Classifying costs

2.2 Cost sheet

2.3 Marginal costing

2.4 Break even graph

2.5 Budget

2.6 Budgetary control

UNIT III

3.1 Auditing

- 3.1.1 Audit procedure
- 3.1.2 Internal control, Internal check, Internal audit
- 3.1.3 Types of external audit
- 3.1.4 Computerised audit technique

3.2 Computerised accounts

3.3 Audit trials

3.4 System configuration

3.5 Nominal ledgers

3.6 Stock control

3.7 Payroll

3.8 Excel package

- 3.8.1 Introduction, Use of computerized accounting packages

Text Book:

1. Financial Accounting, Jain & Narang
2. Cost Accounting , Jain & Narang
3. Auditing, Jagdish Prasad

OPERATION RESEARCH
OR (3.5.31)

UNIT I OPERATION RESEARCH

1.1 Operation research

1.1.1 Introduction

1.2 Problem formulation and modeling

1.2.1 Problems of formulation

1.2.2 Measures of performance

1.2.3 Modeling in OR

1.2.4 Deriving a solution

1.2.5 Question of errors

1.2.6 Updating the model

1.3 Linear programming

1.3.1 Basic concept of linear programming

1.3.2 Assumption of linear programming

1.3.3 Linear programming model

1.3.4 Simplex solution

1.3.5 Non feasible solution

1.3.6 Unbounded solution

1.3.7 Multiple optimal solution

1.3.8 Transportation

1.3.9 N.W. Corner Rule

1.3.10 VAM method

1.3.11 Assignment problem

UNIT II SEQUENTIAL, SEQUENCING AND QUEUING THEORY

2.1 Sequential decision

2.1.1 Introduction

2.1.2 Dynamic programming

2.1.3 Optimality function

2.1.4 Application of dynamic programming to situation

2.2 Sequencing problems

2.2.1 Introduction

2.2.2 Elements of sequencing problems

2.2.3 Assumption of simple sequencing

2.2.4 Gantt Chart

2.3 Queuing

2.3.1 What is queue?

2.3.2 Queue objects, queing models

2.3.3 Queuing problems Enrilg's Model

2.3.4 Fixed arrival

2.3.5 Random variable

UNIT III SIMULATION, DECISION THEORY AND INVESTMENT DECISION

3.1 Simulation

3.1.1 Meaning of simulation

3.1.2 Methods of simulation

3.1.3 Monte Carlo method

3.1.4 Application of Monte Carlo

3.2 Decision theory

3.2.1 What is decision theory

3.2.2 Determination of alternative action plans

3.2.3 Different decision models

3.2.4 Factors for decision making under risk situation

3.2.5 Marginal analysis

3.2.6 Decision trees

3.2.7 Posterior analysis

3.2.8 Utility function

3.3 Investment decision

3.3.1 Investment decision

3.3.2 Appraisal techniques

Text book

1. Operation Research, V.K. Kapoor
2. Operation Research, S.D. Sharma
3. Operation Research, S. Kalavathy

COMMUNICATIVE ENGLISH
CE (3.5.32)

UNIT I COMMUNICATION

1.1 Communication

- 1.1.1 Importance of communication
- 1.1.2 Verbal And Non-Verbal Communication
- 1.1.3 Effective measures in developing oral communication skill
- 1.1.4 Formal and informal English
- 1.1.5 Bias free and plan English

1.2 Sounds of English

- 1.2.1 English vowels and consonants
- 1.2.2 English syllable and word accent
- 1.2.3 Voice and tone, rising and falling intonation

UNIT II DOING THINGS WITH WORDS

2.1 Doing things with words

- 2.1.1 To ask for information, help, permission
- 2.1.2 To instruct command, request, accept, refuse, prohibit, promise
- 2.1.3 Greeting people, parting in different situation
- 2.1.4 Making request, offering to thanks, responding to "Thank You", expressing regret and condolence
- 2.1.5 Wishing different occasion. Expressing opinions, agreeing, disagreeing and interrupting

2.2 Enriching

- 2.2.1 Enriching vocabulary
  - 2.2.1.1 Improving word power on the basis of etymology
  - 2.2.1.2 Single word substitution

UNIT III WRITING APPLICATION, MEETING & PRESENTATION

3.1 Writing application for job

- 3.1.1 Application without a curriculum vitae
- 3.1.2 Application with a curriculum vitae

3.2 Meeting and presentation

- 3.2.1 Organizing a meeting, preparing and agenda, writing minutes
- 3.2.2 Making an oral presentation
- 3.2.3 Facing an interview
- 3.2.4 Personality development

Text Book:

1. Effective English Communication, Krishna Mohan & Meenakshi Raman, TMH
2. Learn Correct English, Shiv K. Kumar & Hemalatha Nagarajan, Longman

VISUAL C++ AND MFC

VC++ & MFC (3.5.33)

UNIT I ARCHITECTURE OF MICROSOFT WINDOWS AND MFC

1.1 Understanding Windows Architecture, Anatomy of a Windows base application, analyzing a simple windows base application.
1.2 Introduction to MFC, MFC class hierarchy, Using Microsoft developer studio
1.3 Creating an SDI application.
1.4 Classes in a minimum MFC application, Writing application in non document/view.
1.5 Using application wizard to create MFC application.

UNIT III HANDLING MESSAGE AND OUTPUT TEXT AND GRAPHICS.

2.1 Introduction to message, Message mapping system, Message mapping in MFC.
2.2 Writing output to a device, Using CDC class, Using GDI object .
2.3 Mapping Modes.
2.4 Drawing graphics and text to the screen.
2.5 Introduction to different controls.

UNIT III DESIGNING GUI INTERFACE.

3.1 Using frame, Static control, Text control, Drop down list.
3.2 Getting and setting values for different controls.
3.3 Creating and Using dialog boxes.
3.4 Creating and Using property sheet.
3.5 Creating and Using Menus, Tool Bar, Status Bar.
3.6 Introduction to data persistence.

Text Book:

Programming in VC++ - Y.P.Karntetkar

ADVANCED JAVA
AJ (3.5.34)

UNIT I INTRODUCTION TO J2EE AND JDBC

1.1 J2EE and its components.
1.2 Understanding the feature of JDBC, Different JDBC drivers.
1.3 Using JDBC to query a database.
1.4 Using swing components. (JFC)

UNIT II RMI (REMOTE METHOD INVOCATION) AND SERVLETS

2.1 Over view of distributed application.
2.2 Understanding RMI architecture.
2.3 Creating an application in RMI, Defining stubs and skeletons.
2.4 Introduction to Servlet.
2.5 Understanding lifecycle of Servlet.
2.6 Servlet Collaboration.

UNIT III JSP AND INTRODUCTION TO EJB.

3.1 Understanding architecture of JSP.
3.2 Implementing request-Response cycle in JSP.
3.3 Identifying types of EJB.
3.4 Using EJB in application.

Text Book:

1. Server Programming – Wrox Publication
2. Complete Reference Adv. Java - TMH

WINDOWS SERVER 2003 ENVIRONMENT
WS (3.5.33)

UNIT I ADMINISTERING WINDOWS SERVER 2003

1.1. Introducing Microsoft Windows Server 2003
- 1.1.1. The Windows Server 2003 Family
- 1.1.2. Installation and Configuration of Windows Server 2003 and AD

1.2. Administering Microsoft Windows Server 2003
- 1.2.1. The Microsoft Management Console
- 1.2.2. Managing Computers Remotely with the MMC
- 1.2.3. Managing Servers with Remote Desktop for Administration
- 1.2.4. Using Remote Assistance

UNIT II MANAGING USERS, GROUPS AND COMPUTERS

2.1. User Accounts
- 2.1.1. Creating and Managing User Objects
- 2.1.2. Creating Multiple User Objects
- 2.1.3. Managing User Profiles
- 2.1.4. Securing and Troubleshooting Authentication

2.2. Group Accounts
- 2.2.1. Understanding Group Types and Scopes
- 2.2.2. Managing Group Accounts
- 2.2.3. Using Automation to Manage Group Accounts

2.3. Computer Accounts
- 2.3.1. Joining a Computer to a Domain
- 2.3.2. Managing Computer Accounts
- 2.3.3. Troubleshooting Computer Accounts

UNIT III MAINTENING THE SERVER ENVIRONMENT

3.1. Files and Folders
- 3.1.1. Setting Up Shared Folders
- 3.1.2. Configuring File System Permissions
- 3.1.3. Auditing File System Access
- 3.1.4. Administering Internet Information Services

3.2. Backing Up Data
- 3.2.1. Fundamentals of Backup
- 3.2.2. Restoring Data
- 3.2.3. Advanced Backup and Restore

3.3. Printers
   3.3.1. Installing and Configuring Printers
   3.3.2. Advanced Printer Configuration and Management
   3.3.3. Maintaining, Monitoring, and Troubleshooting Printers

3.4. Maintaining the Operating System
   3.4.1. Software Update Services
   3.4.2. Service Packs
   3.4.3. Administering Software Licenses

Text Book:-

(i) MCSA/MCSE Self-Paced Training Kit (Exam 70-290): Managing and Maintaining a Microsoft Windows Server 2003 Environment, Second Edition by Dan Holme and Orin Thomas

Reference Books:-

(i) MCSA/MCSE: Windows Server 2003 Environment Management and Maintenance Study Guide: Exam 70-290 by Lisa Donald and James Chellis
(ii) MCSA/MCSE Managing and Maintaining a Windows Server 2003 Environment: Exam 70-290 Study Guide and DVD Training System by Thomas W. Shinder, Debra Littlejohn Shinder, Syngress Publishing, and Chris Peiris
(iii) 70-290: MCSE Guide to Managing a Microsoft Windows Server 2003 Environment, Enhanced by Dan DiNicolo and Brian W. McCann

NETWORK INFRASTRUCTURE DESIGN
ND (3.5.34)

UNIT I TOPOLOGY AND TCP/IP INFRASTRUCTURE

1.1. Planning a Network Topology
- 1.1.1. Windows Server 2003 and the Network Infrastructure
- 1.1.2. Selecting Data-Link Layer Protocols
- 1.1.3. Selecting Network/Transport Layer Protocols
- 1.1.4. Locating Network Resources

1.2. Planning a TCP/IP Network Infrastructure
- 1.2.1. Determining IP Addressing Requirements
- 1.2.2. Planning an IP Routing Solution
- 1.2.3. Planning an IP Addressing and Subnetting Strategy
- 1.2.4. Assigning IP Addresses
- 1.2.5. Troubleshooting TCP/IP Addressing

UNIT II INTERNET CONNECTIVITY, NAME RESOLUTION AND RRAS

2.1. Planning Internet Connectivity
- 2.1.1. Planning an Internet Connectivity Infrastructure
- 2.1.2. Selecting Routers and ISPs
- 2.1.3. Securing and Regulating Internet Access
- 2.1.4. Troubleshooting Internet Connectivity

2.2. Planning a Name Resolution Strategy
- 2.2.1. Determining Name Resolution Requirements
- 2.2.2. Designing a DNS Namespace
- 2.2.3. Implementing a DNS Name Resolution Strategy
- 2.2.4. Implementing a NetBIOS Name Resolution Strategy
- 2.2.5. Planning DNS Security
- 2.2.6. Troubleshooting Name Resolution

2.3. Using Routing and Remote Access
- 2.3.1. Planning a Routing and Remote Access Strategy
- 2.3.2. Static and Dynamic Routing
- 2.3.3. Securing Remote Access
- 2.3.4. Troubleshooting TCP/IP Routing

UNIT III SERVER AVAILIBILITY, CLUSTERING AND BASELINE POLICY

3.1. Maintaining Server Availability
- 3.1.1. Monitoring Network Traffic
- 3.1.2. Monitoring Network Servers
- 3.1.3. Planning a Backup Strategy

3.2. Clustering Servers
- 3.2.1. Understanding Clustering
- 3.2.2. Using Network Load Balancing
- 3.2.3. Designing a Server Cluster

3.3. Planning a Secure Baseline Installation
    3.3.1. Selecting Computers and Operating Systems
    3.3.2. Planning a Security Framework
    3.3.3. Identifying Client and Server Default Security Settings

3.4. Hardening Servers
    3.4.1. Creating a Baseline for Member Servers
    3.4.2. Creating Role-Specific Server Configurations
    3.4.3. Deploying Role-Specific GPOs

Text Book:-

(i) MCSE Self-Paced Training Kit (Exam 70-293): Planning and Maintaining a Microsoft Windows Server 2003 Network Infrastructure, Second Edition by Craig Zacker, Anthony Steven, and Content Master

Reference Books:-

(i) 70-293 Planning and Maintaining a Microsoft Windows Server 2003 Network Infrastructure Package (Microsoft Official Academic Course Series) by Microsoft Official Academic Course
(ii) Mike Meyers' MCSE Windows Server 2003 Planning a Network Infrastructure Certification Passport (Exam 70-293) by Martin C. Brown and Chris McCain
(iii) MCSE Planning and Maintaining a Windows Server 2003 Network Infrastructure: Exam 70-293 Study Guide and DVD Training System by Dr. Thomas W. Shinder, Debra Littlejohn Shinder, Michael Moncour, and Syngress Publishing

PRACTICAL

VC++ AND MFC
VC++ & MFC (3.5.35)

As per the theory Syllabus VC++ & MFC (3.5.33)

PRACTICAL

WINDOWS SERVER 2003 ENVIRONMENT
WS (3.5.35)

As per the theory Syllabus WS (3.5.33)

PRACTICAL

ADVANCED JAVA
AJ (3.5.36)

As per the theory Syllabus AJ (3.5.34)

PRACTICAL

NETWORK INFRASTRUCTURE DESIGN
ND (3.5.36)

As per the theory Syllabus ND (3.5.34)

PRACTICAL

PROJECT (INTERNSHIP)
PJ (3.6.37)