BCA 221- Network Fundamentals

1. **Basics of Computer Network**

Define computer network, identifying basic networking elements and describing roles of Clients, Server, Peers, and Transmission Media & Protocols Network Services: File, print, Message, Database Application Identifying Differences bet. Centralized & distributed network architecture Identifying appropriate transmission media to meet a business need .Cable Media & Wireless Media, Network Connectivity devices, Modern repeaters, Hubs Bridges, Multiplexes and routers

2. OSI Layers

Identifying 7 Layers of OSI
Physical Layer: Connection types used in Computer Network, Common Physical technologies used in computer
Network: BUS, Ring, Star, Cellular, Analog & Digital Signals, bandwidth
Data link Layer: Purpose of data link Layer, Switching Methods, Routing, Network layer connection services, Bridging
Transport Layer: Purpose of transport layer, Address name resolution, Flow control, Error control
Session Layer: Purpose of Session Layer, Session Administration, Dialog control methods
Presentation Layer: Purpose of Presentation Layer, Application Layer: Purpose of Application Layer

3. TCP/IP Fundamentals

Identifying Network Classes, obtain register IP address, Domains, how Host name, host table and DNS work. Windows Internet naming services (WINS), Subnets, Subnets mask Assigning and managing IP subnets.

4. Network Operating System

Introduction to Windows XP /Vista and Windows 7 as desktop operating systems and
Sharing files and folders in Windows Network, Printing in Windows Network.
Introduction to Windows 2003 and windows 2008 as Network operating system ,Working with NDS Basics, Creating Users and Login scripts

Reference Books

Computer Networks	Tanenbum
Local area Networks	Keiser / D. Comer

BCA 222 C Programming

1. LOGIC DEVELOPMENT:
Variable & Constants, Operators, Programming Constructs, Sequence, Selection Iteration.

2. INTRODUCTION TO FLOWCHARTING:
What Are Flowcharts? Types of Flowcharts, Advantages of Flowcharts, Flowchart Symbols, Use of Symbols, Developing Flowcharts, Flowchart Aesthetics.

3. TECHNIQUES:
Flowchart For Computations, Flowcharts For Decision Making, Flowcharts For Loops Predefined Process, Arrays.

4. INTRODUCTION TO C
DATA TYPES AND OPERATORS:
Instruction in C, Operators, Type Conversions, Operator precedence in C, Data Types Revisited
INPUT / OUTPUT:
Introduction, Unformatted I/O Functions, Formatted I/O Functions.

5. CONTROL STATEMENTS:
Decision Control Instruction, Loop control or Iteration instructions, Case Control Instructions, Jump Statements.

6. ARRAYS AND STRINGS:
Introduction, One Dimensional Array, Two Dimensional Arrays, Strings, String Library Functions, Two Dimensional Arrays of Characters.

7. FUNCTIONS:
What is a Function? , Why use Functions? Passing Value between Functions, Scope Rule of Functions, Advanced features of Functions.

8. POINTERS:
Pointers Overview, Pointers and Functions, Pointers and Arrays, Dynamic Memory Allocation, Pointers to Pointers.

9. STRUCTURES
Introduction, Declaring a Structure and Union, Array of Structure, Assigning a Structure variable to another variable, Nesting of Structure, Passing a Structure variable to a Function, Pointers and Structures, User defined Data Types.

10. FILE MANIPUALATION:
Introduction, Unformatted High level Disk Input Output functions, Character Input output in Files, Command Line Arguments, String Input Output in Files, Formatted High level Dist I/O Functions, Direct Input Output, Error Handling functions, File Positioning, Introduction to Preprocessor, Macro substitution, File Inclusion.

Reference Books:

The spirit of C - Mulish Cooper
Programming in ANSI C - - Bal guru swami
Let us C- - Yashwant Kanitkar
Data Structure Using C - Tenenbaum

BCA 223 Structured System Analyses and Design

1. **System Concept and the information system environment**

System concept definition, Characteristics of system, Boundaries and interface, Open and closed system, Types of system

2. **Phases of Software Development Life Cycle**

What are problem, Feasibility study, analysis, design, implementation, and maintenance.

3. **The role of System analyst**

Academic and professional qualifications, the multifaceted role of the analyst, Change agent, Investigation and monitoring, Architect, Psychologist, The analyst/ User Interface, MIS organization

4. **Different approaches to Software Development**

Waterfall model, Spiral Model, Prototyping, RAD, Object oriented

5. **Structured System Analysis Tools and Techniques**

Fact finding tools and techniques, Functional Decomposition Diagram (FDD)

6. **Application System Modeling**

ER model (Data Modeling), Data Flow Diagram (Process Modeling)

7. **Database Design Methods**

Mapping ER diagram, Data Normalization techniques

8. **Logic representation techniques**

Decision trees, Decision tables, Structured English

9. **Input/output form design**

Input data, input media and devices, output design, form design, classification of form, form control

10. **System testing and quality assurance**

Nature of test data, test plan, system testing, quality assurance, audit trail

11. **Hardware and software selection**

Hardware suppliers, software suppliers, service suppliers, procedure for hardware and software selection

12. **Implantation and software maintenance**

Request for review, review plan, software maintenance, Maintenance procedure, reducing maintenance cost.

13. **Project scheduling and software**

Why does system fails, project management

14. **Security and Recovery of systems**

System security, Recovery planning

Reference Books:

System Analysis and Design	-	V. Raja Raman
Introduction to system Analysis	-	Skidmore
Introduction to system Design	-	Skidmore
System Analysis and Design	-	Elias M. Awad

BCA 224 –Principles and Practice of Management (PPM-1)

1. ***Nature of management :***
    a. Meaning , Definition
    b. Nature of mgmt.
    c. Importance of mgmt.
    d. Functions of mgmt.
    e. Management as an art , a science and a profession
    f. Distinguish between management, organization and administration

2. ***Evolution of Mgmt. thought :***
    a. Contribution of F.W.Taylor
    b. Contribution of Henry Fayol
    c. Contribution of Elten Mayo
    d. Various approaches to management

3. ***Planning :***
    a. Meaning, definitions
    b. Nature , objectives
    c. Importance
    d. Process of planning
    e. Types of plans
    f. Advantages
    g. Disadvantages

4. ***Forecasting:***
    a. Meaning
    b. Methods
    c. Techniques
    d. Sales forecasting:
        a. methods of sales forecasting
    e. Advantages

5. ***Decision making:***
    a. Meaning and definitions
    b. Types of decisions
    c. Process of decision making

6. ***Organizing:***
    a. Meaning and definitions
    b. Importance of organizing
    c. Features of organizational structure
    d. Types of organization:
        a. Line
        b. Line and staff
        c. Functional

d. Committee
e. Departmentalization
f. Span of management
g. Delegation of authority
h. Centralization and decentralization

Reference Book:

Principles & practices of management –	Dr.Shejwalkar
Human Resource Management	P.C. Pardeshi (Nirali Prakashan)
Principles and practice of Management-	Dr. P. C. Pardeshi (Ujwal Prakashan)

BCA 225 - Operating System

UNIT 1 - Basics of Operating systems.

Definition, functions of operating systems. Typical operating systems - Dos, Window.
Types of windows and its basic features

UNIT 2

PROCESSOR MANAGEMENT:

Introduction to State Model, Job Scheduling, Process Scheduling, Multiprocessor Systems, Process Synchronization

DEVICE MANAGEMENT:

Introduction to Techniques for Device Management, Device Characteristics – Hardware Consideration, Channels and Control Units, Device Allocation Considerations, Virtual Devices, I/O Programming, Interrupt Structure and Processing.

UNIT 3

MEMORY MANAGEMENT:

Introduction to Single Contiguous Allocation, Introduction to Multiprogramming, Partitioned Allocation, Relocation Partitioned Memory Management, Paged Memory Management, Demand – Paged Memory Management, Segmented Memory Management, Segmented and Demand – Paged Memory Management, Other Memory Management, Future Trends in Memory Management.

INFORMATION MANAGEMENT:

Introduction to a Simple File System, General Model of a file System, Symbolic File System, Basic File System, Access Control Verification, Logical File System, Physical File System, Device Strategy Module.

UNIT4

INTERDEPENDENCIES: PERFOMANCE EVALUATION

Memory Management, Processor Management, Device Management, Information Management, Influences, Swapping versus Paging,

FILES SYSTEM

File system, File management, types of file systems and security for the same. Disk management and backup management for the same. Types of backup.

BCA 226 – Practical – C Programming