

Tilak Maharashtra University
Bachelor of Computer Applications
First Year
BCA 221- Network Fundamentals
Online 3

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

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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, Win XP, Wireless Network

Reference Books

1. Computer Networks Tanenbum
2. Local area Networks Keiser / D. Comer

BCA 222 C Theory

Online 3

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.

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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,

Reference Books:

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

Online 3

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)

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

6. Database Design Methods

Mapping ER diagram, Data Normalization techniques

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7. Logic representation techniques

Decision trees, Decision tables, Structured English

8. User interface design

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

9. System testing and quality assurance

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

10. Hardware and software selection and system maintenance

Hardware suppliers, software suppliers, service suppliers, procedure for hardware and software selection, system maintenance, reducing maintenance cost.

11. Software project management and implementation

Request for review, review plan, software maintenance, Maintenance procedure, Why do system fails, project management

12. System Security and Recovery planning.

System security, Recovery planning

Reference Books:

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

Online 3

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

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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:

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

Online 3

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.

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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.

UNIT 4

INTERDEPENDENCIES: PERFORMANCE EVALUATION

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

FILE SYSTEM:

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

Reference Books:

Operating System Concepts : Silberschatz, Galvin