

Minor Bsc NM IST

July 2024

Computing Fundamentals: Overview of computing principles and history, Generations of Computers, Block Diagram along with its components, Classification of computers, Applications of computers in various fields. Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices.

August 2024

Basics of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions.

Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving- Flowcharting, Algorithms

September 2024

Introduction to the C programming language: History of C, Importance of C, Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() Functions, Operators & Expression, type casting and conversion, operator hierarchy & associativity

Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement.

Decision making & Looping: while, do-while and for loop, jumps in loops, break, continue statement, Nested loops

October 2024

Functions and modular programming concepts: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions, output functions, string manipulation functions. User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion.

November 2024

Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string, Input/output of string data, Introduction to pointers.

Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C; Dynamic memory allocation and deallocation; Advanced control structures: switch, break, and continue statements.

BCA – 203 :INTRODUCTION TO DATABASE SYSTEM

July 2024

UNIT – I

1.

Basic Concepts – Data, Information, Records and files. Traditional file –based Systems-File Based Approach-Limitations of File Based Approach, Database Approach-Characteristics of Database Approach, advantages and disadvantages of database system, components of database system, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, DBMS users, Advantages and Disadvantages of DBMS, DBMS languages.

2.

Roles in the Database Environment - Data and Database Administrator, Database Designers, Applications Developers and Users .

August 2024

UNIT – II

3.

Database System Architecture – Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances .

4.

Data Independence – Logical and Physical Data Independence .

Classification of Database Management System, Centralized and Client Server architecture to DBMS .

September 2024

Data Models: Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Modeling.

UNIT – III

Entity-Relationship Model – Entity Types, Entity Sets, Attributes Relationship Types, Relationship Instances and ER Diagrams, abstraction and integration.

Basic Concepts of Hierarchical and Network Data Model, Relational Data Model:-Brief History,

October 2024

Relational Model Terminology-Relational Data Structure, Database Relations, Properties of Relations, Keys, Domains, Integrity Constraints over Relations, .

UNIT – IV

Relational algebra, Relational calculus, Relational database design: Functional dependencies, Modification anomalies, 1st to 3rd NFs, BCNF, 4th and 5th NFs, computing closures of set

November 2024

FDs, SQL: Data types, Basic Queries in SQL, Insert, Delete and Update Statements, Views, Query processing: General strategies of query processing, query optimization, query processor, concept of security, concurrency and recovery.

BCA – 5th sem MANAGEMENT INFORMATION SYSTEM

July 2024

UNIT – I

Introduction to system and Basic System Concepts, Types of Systems,

August 2024

The Systems

Approach, Information System: Definition & Characteristics, Types of information, Role of Information in Decision-Making, Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS.

September 2024

UNIT –II

An overview of Management Information System: Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS: Information requirements & Levels of Management, Simon's Model of decision-Making, Structured Vs Un-structured decisions, Formal vs. Informal systems.

October 2024

UNIT – III

Developing Information Systems: Analysis & Design of Information Systems: Implementation & Evaluation, Pitfalls in MIS Development.

November 2024

UNIT – IV

Functional MIS: A Study of Personnel, Financial and production MIS, Introduction to ebusiness systems, ecommerce – technologies, applications, Decision support systems – support systems for planning, control and decision-making

BCA – 303 : Data Communication and Networking

July 2024

UNIT – I

Introduction to Computer Communications and Networking Technologies; Uses of Computer Networks; Network Devices, Nodes, and Hosts; Types of Computer Networks and their Topologies; Network Software: Network Design issues and Protocols; Connection-Oriented and Connectionless Services; Network Applications and Application Protocols; Computer Communications and Networking Models: Decentralized and Centralized Systems, Distributed Systems, Client/Server Model, Peer-to-Peer Model, Web-Based Model, Network Architecture and the OSI Reference Model, TCP/IP reference model, Example Networks: The Internet, X.25, Frame Relay, ATM.

August 2024

UNIT – II

Analog and Digital Communications Concepts: Concept of data, signal, channel, bit-rate , maximum data-rate of channel, Representing Data as Analog Signals, Representing Data as Digital Signals, Data Rate and Bandwidth, Capacity, Baud Rate; Asynchronous and synchronous transmission, data encoding techniques, Modulation techniques, Digital Carrier Systems; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Dialup Networking; Analog Modem Concepts; DSL Service.

September 2024

UNIT - III

Data Link Layer: Framing, Flow Control, Error Control; Error Detection and Correction; Sliding Window Protocols; Media Access Control: Random Access Protocols, Token Passing Protocols; Token Ring; Introduction to LAN technologies: Ethernet, switched Ethernet, VLAN, fast Ethernet, gigabit Ethernet, token ring, FDDI, Wireless LANs; Bluetooth; Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways.

October 2024

UNIT – IV

Network Layer and Routing Concepts: Virtual Circuits and Datagrams; Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Hierarchical Routing; Congestion Control Algorithms; Internetworking;

November 2024

Network Security Issues: Security threats; Encryption Methods; Authentication; Symmetric – Key Algorithms; Public-Key Algorithms

Bca 1st year Computer Fundamentals & Problem Solving using C

JULY 2024

Unit – I

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Overview of Networking & Operating System: Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions

AUGUST 2024

Unit – II

Planning the Computer Program: Problem definition, Program design, Debugging, Types of errors in programming, Techniques of Problem Solving- Flowcharting, Algorithms

Overview of C: History of C, Importance of C, Elements of C:

September 2024

C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() Functions, Operators & Expression, type casting and conversion, operator hierarchy & associativity.

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OCTOBER 2024

Unit – III

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November 2024

Unit – IV

Functions: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions output functions, string manipulation functions. User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion.

Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions, Declaration and initialization of string, Input/output of string data, Introduction to pointers.

