

Class BSc 1st

Teacher: Dr. Ashok Sindhu

| Month | Topics |
|-------|---|
| Feb | UNIT - I Information Representation: Number Systems, Binary Arithmetic, Fixed-point and Floatingpoint representation of numbers, BCD Codes, Error detecting and correcting codes, Character Representation – ASCII, EBCDIC. |
| March | UNIT - II Binary Logic: Boolean Algebra, Boolean Theorems, Boolean Functions and Truth Tables, Canonical and Standard forms of Boolean functions, Simplification of Boolean Functions – Venn Diagram, Karnaugh Maps. |
| April | UNIT - III Digital Logic: Basic Gates – AND, OR, NOT, Universal Gates – NAND, NOR, Other Gates – XOR, XNOR etc. Combinational Circuits: Half-Adder, Full-Adder, HalfSubtractor, Full-Subtractor, Encoders, Decoders, Multiplexers, Demultiplexers, Comparators, Code Converters. |
| May | UNIT IV Sequential Logic: Characteristics, Flip-Flops, Clocked RS, D type, JK, T type and MasterSlave flip-flops. State table, state diagram. Flip-flop excitation tables Shift registers : serial in parallel out and parallel in parallel out.. Designing counters – Asynchronous and Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters |

Class BSc 3rd

Teacher: Dr. Ashok Sindhu

| Month | Topics |
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| Feb | UNIT – I Relational Model Concepts, Codd's Rules for Relational Model, Hierarchical Data Model– Introduction, Features, Components, Example, Network Data Model– Introduction, Features, Components, Example, Differences between Hierarchical Data Model and Network Data Model Comparison of Relational Data Model with Hierarchical Data Model and Network Data Model Relational Algebra:-Selection and Projection, Set Operation, Join and Division. |
| March | UNIT – II Relational Calculus: Tuple Relational Calculus and Domain Relational Calculus. Functional Dependencies and Normalization -- Purpose, Data Redundancy, Update Anomalies, Partial/Fully Functional Dependencies, Transitive Functional Dependencies, Characteristics of Functional Dependencies, Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF). |
| April | UNIT – III SQL: Data Definition and data types, Create Table, Insert Data, Viewing Data, Filtering Table Data, Sorting data, Creating Table from a Table, Destroy table, Update, View, Delete, Join, Concatenating data from Table Specifying Constraints in SQL; Primary Key, Foreign Key, Unique Key, Check Constraint, Using Functions |
| May | UNIT – IV PL/SQL-Introduction, Advantages of PL/SQL The Generic PL/SQL Block: PL/SQL Execution Environment; PL/SQL Character Set and Data Types, Declaration and Assignment of Variables Control Structure in PL/SQL: Conditional Control, Iterative Control, Sequential Control |

Class BSc 3rd

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| Month | Topics |
|-------|---|
| Feb | UNIT – I Introduction to Data Communication and Computer Networks; Uses of Computer Networks; Types of Computer Networks and their Topologies; Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways; Network Software: Network Design issues and Protocols; Connection-Oriented and Connectionless Services; OSI Reference Model; TCP/IP Model; |
| March | UNIT – II Analog and Digital Communications Concepts: Analog and Digital data and signals; Bandwidth and Data Rate, Capacity, Baud Rate; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Modems and modulation techniques; |
| April | UNIT - III Data Link Layer Design issues; Error Detection and Correction methods; Sliding Window Protocols: One-bit, Go Back N and Selective Repeat; Media Access Control: ALOHA, Slotted ALOHA, CSMA, Collision free protocols; Introduction to LAN technologies: Ethernet, Switched Ethernet, Fast Ethernet, Gigabit Ethernet; Token Ring; Introduction to Wireless LANs and Bluetooth; |
| May | UNIT – IV Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Hierarchical Routing; Congestion Control; Traffic shaping; Choke packets; Load shedding; Application Layer: Introduction to DNS, E-Mail and WWW services; Network Security Issues: Security attacks; Encryption methods; Firewalls; Digital Signatures |

Class PGDCA

Teacher: Dr. Ashok Sindhu

| Month | Topics |
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| Feb | UNIT-I Number System and Logic Gates: Decimal, Binary, Octal and Hexadecimal Number System, Addition, Subtraction, multiplication and division of binary numbers, Number code: 8421 BCD, Grey, ASCII, EBCDIC codes, Conversions from one number system to another, Logic Gates: AND, OR, NOT, NAND, NOR, XOR, XNOR |
| March | UNIT-II Combinational Logic Circuits: Boolean operations, Basic Laws of Boolean Algebra, Demorgan's theorem, Principle of Duality, Sum-of-Products Methods, Truth Table, Karnaugh-Map, Pairs, Quads, and Octets, Karnaugh Simplifications, Don't-care Conditions, Product-of-sums Method, Adder circuits: Half, Full, 4-bit adder |
| April | UNIT-III Flip Flop and Registers: Flip Flop: RS Latch, RS, D,T, JK Flip Flop, JK Master Slave Flip Flop, Clock wave forms, Registers: Types of Registers, Serial In Serial Out (SISO), Serial In Parallel Out (SIPO), Parallel In Serial Out (PISO), Parallel In Parallel Out (PIPO), Universal Shift Register |
| May | UNIT-IV Counters and Memory: Asynchronous counters, Synchronous counters, ring counter, ripple counter, Johnson counter Memories: Basic terms and ideas, Magnetic Memory, Optical Memory, Memory Addressing, ROMs, PROMs, and EPROMs, RAMs. |

