Department of Computer Science
Lesson Plan Session 2024-2025
BACS Semester-IV

Computer Networks (BACS-205)

January 2025 to April 2025	Topics
1st Week	Introduction to Computer Communications and Networking Technologies, Uses of Computer Networks
2nd week	Network Devices, Nodes, and Hosts, Types of Computer Networks and their Topologies
3rd Week	OSI Reference Model, TCP/IP Reference Model.
4th Week	Analog and Digital Communications Concepts: Representing Data as Analog Signals, Representing Data as Digital Signals
5th Week	Data Rate and Bandwidth, Capacity, Baud Rate; Digital Carrier Systems; Guided and Wireless Transmission Media; Communication Satellites
6th Week	Switching and Multiplexing.
7th Week	Data Link Layer: Framing, Flow Control,
8th Week	Error Control, Error Detection and Correction, Sliding Window Protocols
9th Week	Media Access Control, Random Access Protocols, Token Passing Protocols, Token Ring
10th Week	Ethernet, gigabit Ethernet, token ring, FDDI, Bluetooth and Wi-Fi
11th Week	Network Layer and Routing Concepts: Virtual Circuits and Datagrams,
12th Week	Routing Algorithms, Flooding
13th Week	Shortest Path Routing, Distance Vector Routing, Link State Routing, Hierarchical Routing
14th Week	Congestion Control Algorithms, Internetworking, IPV4 and IPV6.
15th Week	Doubt Clearance

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BACS Semester-IV

Software Engineering (BACS-204)

January 2025 to April 2025	Topics
1st Week	Introduction: Program vs. Software, Software Engineering paradigms, Software Crisis – problem and causes.
2nd week	Phases in Software development: Requirement, Analysis, Software Design, Coding, Testing, Maintenance.
3rd Week	Software Development Process Models: Waterfall, Prototype, Evolutionary and Spiral models.
4th Week	Software Requirement Analysis and Specifications: Feasibility Study Software Requirements
5th Week	Need for SRS, Characteristics of an SRS, Components of an SRS, Structure of a requirements document
6th Week	validation and metrics. Problem Analysis, Data Flow Diagram, Data Dictionary, Decision table, Decision trees
7th Week	Software Project Planning: Process Planning, Effort estimation, COCOMO model,
8th Week	Project scheduling and Staffing, team structure, Software configuration management
9th Week	Quality assurance plans, Risk Management, Project monitoring plans.
10th Week	Software Implementation and Maintenance: Type of maintenance, Management of Maintenance, Maintenance Process, maintenance characteristics.
11th Week	Testing: Testing fundamentals, Error, Fault, and Failure, Test Oracle, Test Case and Test Criteria, Psychology of testing
12th Week	Black Box Testing, Equivalence Class Partitioning, Boundary value analysis,
13th Week	Cause effect graphing, White box testing, Control flow-based criteria
14th Week	level of testing, Unit testing, Integration testing, System testing, Validation testing, alpha, beta, and Acceptance testing.
15th Week	Doubt Clearance