Semester: Summer 2025

Name of the Teacher	:	Akib Ikbal
Designation	:	Lecturer
Department	:	Computer Science and Engineering
Mobile No.	:	01743172636
Course Title (Code)	:	Computer Networks (CSE 2207)
Semester & Section	:	4th & Section – B, C, D

Books:

1. Behrouz A. Forouzan: "Data Communications and Networking"
2. William Stallings: "Data and Computer Communications"

No.	Name of the Topics
1.	Basic Introduction to Computer Networks, Data Communications, Data Flow and Network Topologies
2.	Categories of Networks and Basics of the internet and protocols
3.	Concept of Intranet and Extranet, Networks based on Architecture, Transmission and Scale (PAN, LAN, MAN, WAN)
4.	IP Addressing: IPv4 structure, address space and notations.
5.	Classful IP Addressing, Class determination using binary notation, Parts of IP addresses and default masking concept
6.	Private IP, IPv6 and basic differences between IPv4 and IPv6
7.	The OSI Model, Layers in OSI Model, Concept of networking Protocols
8.	Detailed look into the OSI Network Reference Model
9.	Brief overview on OSI Model Data exchange, Physical Layer and Data Link Layer
10.	Brief overview on Network Layer, Network Independent Layer and Upper Layers
11.	Summary and Visualization on OSI Layers functions and protocols.
12.	Class Test 1 and solution
13.	Detailed concept of TCP/IP reference model
14.	Addressing in TCP/IP and advantages-disadvantages of OSI and TCP/IP reference model (comparative study)
15.	Basic concept of connecting devices
16.	Categorical Study of connecting devices
17.	Bridges, switches, learning processes and looping problems in switches
18.	Detailed study on routers and VLANs
19.	A comprehensive study on data link layer, frame, framing methodologies, errors and error detection

20. Error detection techniques and error correction techniques in a frame.
21. Detailed overview on subnetting, designing a subnet with classful and classless IPs
22. Concept of routing and forwarding
23. Routing Algorithms: Link State and Distance Vector in details
24. Autonomous System and routing protocols
25. Details overview of Transport Layer and Transport Layer Protocols, multiplexing and demultiplexing and transport layer duties.
26. Class Test 2 and solution
27. Application layer detailed overview, DNS Operations and Servers
28. Review class on previous lessons and problem solving

CLOS (Course Learning Outcome):

CLO (with description)	**PLO**	**Knowledge Profile(K)**
CLO1: Describe various network reference models.	1	K2, K4
CLO2: Explain various devices for interconnecting different network layers.	1	K4
CLO3: Demonstrate Networking protocols and standards.	2	K4
CLO4: Design networks & subnetworks.	3	K5