

Lecture Plan

B.Tech. (Mathematics & Computing) – V Semester

MC305: Computer Networks

S. No.	Content		No. of Lecture
1.	Introduction	Fundamentals of Networks: Definitions, Applications, Components, Classification.	1
		Data communication concepts: transmission, bandwidth, delay, throughput. Network architecture, services, and interfaces.	1
		Network topology design: types, advantages, and limitations.	1
		Reference Models: OSI model (layers, functions, interactions)	1
		TCP/IP model, comparison with OSI, and algorithms.	2
		Physical layer transmission media, Switching methods, ISDN	2
2.	Data Link Layer & MAC Sublayer	Data link layer design issues, Framing methods: character, bit, byte stuffing.	1
		Error detection and correction methods: CRC, checksum, parity bit code, and Hamming code.	2
		Elementary data link protocols, stop-and-wait ARQ, sliding window basics.	1
		Sliding window protocols: One-bit, Go-Back-N, Selective Repeat.	1
		Medium Access Control (MAC): channel allocation methods.	1
		Multiple access protocols: ALOHA, CSMA/CD, CSMA/CA.	1
		LAN protocols, IEEE 802 standards, FDDI, Token ring	2
3.	Network Layer	Network layer functionalities, point-to-point networks	1
		Logical addressing: Classful and classless IP addressing, subnetting.	3
		Routing concepts and algorithms	2
		Congestion control techniques and algorithms	2
		Internetworking, IPv4 and IPv6	1
4.	Transport & Session Layer	Transport layer design issues	1
		Transport layer protocols: TCP and UDP	1
		TCP features, header format, flow control.	2
		TCP connection management, three-way handshake, termination, Congestion control in TCP	2
		Session layer concepts and design issues. Session layer concepts and design issues.	1
		Remote Procedure Call (RPC) – principles and examples.	1
5.	Presentation & Application Layer	Presentation layer functionalities	1
		Data compression techniques: lossy and lossless	2
		Encryption and decryption basics, symmetric/asymmetric cryptography.	1
		Application layer functionalities, protocols	2
		Email protocols, Internet and Public Networks, virtual terminals, web applications.	2
			2

Evaluation scheme:

Max Marks: 100

S. No.	Exam	Criteria	Marks	Total Marks
1.	Internal Assessment (CWS)	Attendance	5	25
		Class performance, quizzes, and assignments	20	
2.	Mid Semester Exam (MTE)	Mid Semester Exam (MTE)	25	25
3.	End Semester Exam (ETE)	End Semester Exam (ETE)	50	50
			Total	100

Note: Student has to secure a minimum of 26 marks out of 75 (Mid + End Semester examination) and a total of 35 out of 100 to get a pass grade in the course.