

NIRMA UNIVERSITY
SCHOOL OF TECHNOLOGY, INSTITUTE OF TECHNOLOGY
Proposed Teaching & Examination Scheme
Master of Computer Application (2- years programme)
Semester-I

L	T	P	C
3	0	2	4

Course Code	3MCA105
Course Title	Computer Networks

Course Outcomes (COs):

At the end of the course, students will be able to -

1. describe concepts of computer networks with related applications
2. comprehend layered architecture of computer network and functions of different layers
3. understand and building the skills of subnetting and routing mechanisms
4. use network simulating tools for simulating network protocols

Syllabus:

Teaching hours:

Unit I Introduction to Computer Networks: Use of networks, network hardware and software, OSI model, example networks, network standardization, TCP/IP Model.	3
Unit II Physical Layer: Data communication basics, guided transmission media, wireless transmission, communication satellites, public switched telephone network.	4
Unit III Data Link Layer: Data link layer design issues, error detection and correction, elementary data link protocols, sliding window protocols.	8
Unit IV Medium Access Sublayer: Channel allocation problem, multiple access protocols, Ethernet, wireless LAN.	6
Unit V Network Layer: Network layer design issues, Network Layer protocols, routing algorithms, congestion control algorithms, quality of service, and internetworking.	8
Unit VI Transport Layer: Transport service, elements of transport protocols, simple transport protocol, UDP, TCP, performance issues.	8
Unit VII Application Layer protocols: DHCP, Domain name system, FTP, Telnet, electronic mail, World Wide Web, Network security, Virtual Private Network, Network Address Translation and Mobile IP.	8

Self-Study:

The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Laboratory Work:

Laboratory work will be based on above syllabus with minimum 8 experiments to be incorporated that will be considered for evaluation.

Suggested Readings[^]:

1. A. S. Tanenbaum , Computer Networks, Pearson / PHI.
2. B.A. Forouzan, TCP/IP Protocol suite, TMH.
3. Douglas Comer, Internetworking with TCP/IP, Pearson / PHI.
4. B.A. Forouzan, Data Communications and Networking, TMH.
5. Schweber W.L, Data Communication, TMH.

L=Lecture, T=Tutorial, P=Practical, C=Credit

[^]this is not an exhaustive list
