Details of Course:

Course code: Course Title	Course Structure			Pre-Requisite
MC305: Computer Networks	**L**	**T**	**P**	NIL
	3	**1**	**0**	

Course Objective: To provide knowledge about the principles, concepts and applications of computer networks, its application and communication protocols.

Course Outcome (CO):

CO1	Define basic computer network terminology and describe the Data Communications System and its components.
CO2	Illustrate the layers of the OSI model and TCP/IP reference model and also describe the functions of each layer.
CO3	Analyze the way protocols are currently used on the Internet and the requirements for designing network protocols.
CO4	Explain different types of physical layer transmissions and transmission media, and determine techniques for handling transmission errors.
CO5	Explain the routing protocols and discuss the process of assigning IP addresses within a given network, also demonstrate the connection-oriented and connection-less protocols.

S.No.	Contents	Contact Hours
UNIT 1	**Introduction:** Fundamentals and applications of Networks, data communications, network architecture, network classification, Reference models - OSI and TCP/IP, interfaces and services, network topology design, Physical Layer Transmission Media, Switching methods, ISDN.	**8**
UNIT 2	**Data Link Layer:** Framing, Error Handling, Elementary Data Link Protocols, Sliding Window protocols. **Medium Access sublayer:** Channel Allocations, LAN protocols, multiple access protocols, IEEE 802.X standards, FDDI.	**9**
UNIT 3	**Network Layer:** Point-to-point networks, logical addressing, routing, routing algorithms, Congestion control algorithms, Internetworking, IP addressing and subnet masking, IPv6.	**9**
UNIT 4	**Transport Layer:** Transport Layer Design issues, Transport layer protocols, connection management, congestion control. **Session Layer:** Design issues, remote procedure call.	**8**
UNIT 5	**Presentation Layer:** Data compression techniques, Encryption and Decryption. **Application Layer:** Application layer protocols, File Transfer, Access and Management, DNS, Electronic mail, Virtual Terminals, Internet and Public Networks.	**8**
	TOTAL	**42**

Suggested Books:

S.No.	Name of Books/Authors/Publishers	Year of Publication
1	Tanenbaum, A. S., Feamster, N., & Wetherall, D., Computer networks, Pearson Education, 6th Edition, ISBN: 978-0-13-752321-4.	2021
2	Forouzan, B. A., Data communications and networking, McGraw-Hill, 5th Edition, ISBN: 978-0-07-337622-6.	2012
3	Stallings, W., Data and computer communications, Pearson Education, 10th Edition, ISBN: 978-0-13-350648-8.	2013