Semester: 4th			
Paper code: AIDS208/AIML208/IOT208	**L**	**T/P**	**Credits**
Subject: Computer Networks and Internet Protocol	**3**	**0**	**3**
Marking Scheme			

1. Teachers Continuous Evaluation: As per university examination norms from time to time
2. End term Theory Examination: As per university examination norms from time to time

INSTRUCTIONS TO PAPER SETTERS: Maximum Marks: As per university norms

1. There should be 9 questions in the end term examination question paper
2. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions.
3. Apart from Question No. 1, the rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, students may be asked to attempt only 1 question from each unit.
4. The questions are to be framed keeping in view the learning outcomes of course/paper. Thestandard/ level of the questions to be asked should be at the level of the prescribed textbooks.
5. The requirement of (scientific) calculators/ log-tables/ data-tables may be specified if required.

Course Objectives:

1.	To implement a simple LAN with hubs, bridges and switches.
2.	To describe how computer networks are organized with the concept of layered approach.
3.	To demonstrate internet protocols using the modern tools of computer networks.
4.	To design and implement a network for an organization.

Course Outcomes:

CO1	Understand concepts of computer networks and various Internet protocols.
CO2	Analyse given data segments/packets/frames and protocols in various layers of computer networks.
CO3	Design real networks using state of art components using simulation tools.
CO4:	Design and implement a network for an organization.

CO/PO	PO01	PO02	PO03	PO04	PO05	PO06	PO07	PO08	PO09	PO10	PO11	PO12
CO1	2	2	2	2	2	-	-	-	-	-	-	1
CO2	2	2	2	2	2	-	-	-	-	-	-	-
CO3	2	2	2	2	3	-	-	-	-	-	-	-
CO4	2	2	2	2	2	1	1	1	1	1	1	2

Course Overview:

This course deals with fundamentals of computer networks and Internet protocols. It addresses various network models, Data link protocols, network layer protocols and implementation of computer network models and OSI layers. The course also deals with Transport layer protocols. The main emphasis of this course is on the organization and management of networks and internet protocols.

UNIT I: **[8]**

Introduction to Layered Network Architecture- What are computer networks, Layered models for networking, different types of communication models, ISO-OSI Model, TCP/IP.

UNIT II: **[8]**

Data Link Protocols- Stop and Wait protocols, Noise-free and Noisy Channels, Performance and Efficiency, Sliding Window protocols, MAC Sublayer: The Channel Allocation Problem, Carrier Sense Multiple Access Protocols, Collision Free Protocols, FDDI protocol. IEEE Standard 802.3 & 802. 11 for LANs and WLANs

UNIT III: **[8]**

Network Layer protocols- Design Issues: Virtual Circuits and Datagrams, Routing Algorithms, Optimality principle, shortest path routing Algorithms, Flooding and Broadcasting, Distance Vector Routing, Link State Routing, Flow-Based Routing, Multicast Routing; Flow and Congestion Control.

UNIT IV: **[8]**

Transport Layer Protocols- Design Issues, Quality of Services. The Internet Transport Protocols. IPV4 vs IPV6. Session Layer protocol: Dialog Management, Synchronization, Connection Establishment. Quality of service, security management, Firewalls. Application layer protocols: HTTP, SMTP, FTP, SNMP, etc.

Text Books:

1. Tanenbaum, S., C*omputer Networks, Fifth Edition*, Prentice Hall, India, 2013.
2. Behrouz A. Forouzan, Data communication and networking, 5E, Tata McGraw Hill, 2013.

Reference Book:

1. Computer networking- A top-down approach, Pearson Publications. 2017 edition.