Course Code	:	**CSPC53**
Course Title	:	**Computer Networks**
Number of Credits	:	**3-0-0-3**
Pre-requisites (Course Code)	:	-
Course Type	:	**PC**

Course Objectives

- To provide insight about fundamental concepts and reference models (OSI and TCP/IP) and its functionalists
- To gain comprehensive knowledge about the principles, protocols, and significance of Layers in OSI and TCP/IP
- To know the implementation of various protocols and cryptography techniques

Course Contents

UNIT I
Introduction to computer networks: Network Component and Categories - Topologies - Transmission Media - Reference Models: ISO/OSI Model and TCP/IP Model.

UNIT II
Physical Layer: Digital and Analog Signals - Periodic Analog Signals - Transmission Impairments - Digital data transmission techniques - Analog data transmission techniques - Multiplexing and Spread Spectrum.

UNIT III
Data Link Layer: Error Detection and Correction - Parity - LRC - CRC - Hamming Code - Flow Control and Error Control - Stop and wait - ARQ - Sliding window - HDLC - Multiple Access Protocols - CSMA - CSMA/CD and CSMA/CA - IEEE 802.3 Ethernet.

UNIT IV
Network Layer: Packet Switching and Datagram approach - IP Addressing methods - Subnetting - Routing - Distance Vector Routing - RIP - Link State Routing - OSPF - BGP - Multicast Routing - MOSPF - DVMRP - Broadcast Routing.

UNIT V
Transport Layer: Transport Services - UDP - TCP - Congestion Control - Quality of Services (QOS) - Application Layer: Domain Name Space (DNS) - Electronic Mail - WWW - Cryptography Techniques.

Course Outcomes

Upon completion of the course, the students will be able to:
- Gain insight about basic network theory and layered communication architectures
- Propose algorithms at the appropriate layer for any communication network task
- Provide solutions to various problems in network theory
- Conceptualize and design a network stack

Text Books

1. Andrew S. Tanenbaum, David J. Wetherall, "Computer Networks", Fifth Edition, Prentice Hall, 2011.
2. Behrouz A. Foruzan, "Data Communication and Networking", Fifth Edition, Science Engineering & Math Publications, 2013.

Reference Books

1. W. Stallings, "Data and Computer Communication", Tenth Edition, Pearson Education, 2014.

Mapping of Course Outcomes with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓							✓		✓		
CO2		✓		✓								
CO3		✓				✓						
CO4	✓				✓		✓		✓			✓