TCP/IP

Course Code		**Year**	III	**Semester**	II
Course Category	Honors	**Branch**	CSE	**Course Type**	Theory
Credits	4	**L-T-P**	4-0-0	**Prerequisites**	Computer Networks
Continuous Evaluation :	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Understand the fundamental concepts of TCP/IP architecture and protocols, with emphasis on the network layer and transport layer of the suite.	**L2**
CO2	Apply the concepts of flow control, error control and congestion control in the protocols of network layer and transport layer of the suite	**L3**
CO3	Analyze the network architecture and assign suitable network addresses.	**L4**
CO4	Analyze various services and features of Transport Layer Protocols.	**L4**

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	2													
CO2	2												2	
CO3	2												2	
CO4		2							2	2			2	2

Syllabus		Mapped CO
Unit No.	**Contents**	
I	TCP/IP Protocol suite and Addressing, Delivery and forwarding of IP packets. IPV4 Addresses- Introduction, Classful and Classless Addressing, Special address, Network Address Translation (NAT). Internet Protocol Version4(IPv4) – Datagrams, Fragmentation, Options, Checksum, Security, IP Package.	**CO1, CO3**
II	IPv6 Addressing – Introduction, Address Space Allocation, Global Unicast Addresses, Auto configuration and Renumbering. IPv6 Protocol - Introduction, Packet Format, Transition from IPv4 to IPv6. *ICMPv6* - Introduction, Error Messages, Informational Messages, Neighbor Discovery Messages, Group Membership Messages.	**CO1, CO2, CO3**
III	Introduction to the Transport Layer – Transport Layer Services, Features, Segment, TCP Connection, Windows in TCP.	**CO1, CO2, CO4**
IV	Transmission Control Protocol – II: Flow Control, Error Control, Congestion Control, TCP Timers, Options and TCP Package.	**CO1, CO2, CO4**
V	Stream Control Transmission Protocol: Services, Features, Packet format, Association, STD, flow control, error control, congestion control, Internet Security: Network Layer security, Transport Layer Security	**CO1, CO2, CO4**

Learning Resources
Text Books
1. TCP/IP Protocol Suite , Behrouz A. Forouzan, 4th Edition, Tata McGraw-Hill Edition, 2017.
References
1. Internetworking with TCP/IP: Principles, Protocols and Architecture, 6th Edition, Douglas E Comer. Pearson, 2013. 2. TCP/IP Illustrated, Volume 1: The Protocols (computing Series), Kevin Fall and W. Stevens, Second Edition, Addison-Wesley,2011 3. TCP/IP Illustrated: The Implementation, Vol. 2, W. Richard Stevens and Gary R. Wright, First Edition, 2011
e-Resources & other digital material
1. https://www.geeksforgeeks.org/engineering-mathematics-tutorials/ 2. https://www.tutorialspoint.com/discrete_mathematics/index.htm 3. http://www.alas.matf.bg.ac.rs/~mi10164/Materijali/DS.pdf 4. https://nptel.ac.in/courses/111107058/