PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY
KANURU, VIJAYAWADA
Department of Computer Science and Engineering
III B.Tech – I Semester
20CS3503/20IT3503   **COMPUTER NETWORKS(PVP20)**

CO	Statement	Skill	Blooms	Units
CO1	Understand the basic concepts and protocols of different layers.	Understand	L2	1, 2,3,4,5
CO2	Apply Error Correction or MAC Protocol mechanism for a given scenario.	Apply	L3	1
CO3	Apply various Addressing mechanisms /Routing protocols for a given network.	Apply	L3	2,3
CO4	Apply appropriate Transport & Application layer protocol for a given context.	Apply	L3	4,5
CO5	Analyze the given scenario and use appropriate methods/mechanisms/protocols for designing a network.	Analyze, Individual Performance, Communication	L4	2,3,4

COMPUTER NETWORKS		
Unit No.	**Contents**	**Mapped CO**
I	**Introduction :-**Networks, Network Types, Network Models :-The Protocol Layering , TCP/IP Protocol Suite, The OSI Model, **Physical Layer :-**Transmission Media - Guided Media, Un-Guided Media **Data-Link Layer:** Introduction to Data-Link Layer - Introduction, Link-Layer Addressing. Error Detection and Correction - Introduction, Cyclic Redundancy Check. Data Link Control (DLC) - DLC Services. Media Access Control (MAC) - Random Access, Controlled Access.	CO1, CO2
II	**Network Layer:** Introduction to Network Layer - Network-Layer Services, Packet Switching, Network-Layer Performance, IPv4 Addresses **Next Generation IP-** IPv6 Addressing, The IPv6 Protocol	CO1, CO3, CO5
III	**Network-Layer Protocols -** Internet Protocol (IP), Unicast Routing - Introduction, Routing Algorithms- Distance vector and Link State Routing, Unicast Routing Protocols.	CO1, CO3, CO5
IV	**Transport Layer:** Introduction to Transport Layer-Introduction, Transport-Layer Protocols. Transport Layer Protocols-Introduction, User Datagram Protocol(UDP), Transmission Control Protocol(TCP)	CO1, CO4, CO5
V	**Application Layer:** Standard Client-Server Protocols-World Wide Web and HTTP, FTP, Electronic Mail, Telnet, Secure Shell (SSH), Domain Name System (DNS)	CO1, CO4

CO-PO Mapping

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
	Contribution of Course Outcomes towards achievement of Program Outcomes													
CO1	√													
CO2	√													
CO3	√													
CO4													√	
CO5		√							√	√				

Strength of Correlation

Distribution of marks weightage to PO's through CO's.

- The strength of correlation levels is based on percentage of marks distribution towards PO.

	Test	Test Number	Marks
CIE	Objective Exam (10)	Objective Exam -1	10
		Objective Exam -2	10
	Assignment (5)	Assignment -1	5
		Assignment - 2	5
	Descriptive Exam (15)	Descriptive Exam - 1	15
		Descriptive Exam - 2	15

CO	Skill	Blooms	Units	Assessing Tools can be used to measure CO (CIE) Marks	Assessing Tools can be used to measure CO (SEE) Marks
CO1	Understand	L2	1, 2,3,4,5	Objective Exam -10 Descriptive Exam - 1 (2)	14
CO2	Apply	L3	1	Descriptive Exam – 1.5 (3)	14
CO3	Apply	L3	2,3	Descriptive Exam – 7.5 (10)	14
CO4	Apply	L3	4,5	Descriptive Exam - 5	14

CO5	Analyse, Individual Performance, Communication	L4	2,3,4	Assignment -5	14

Strength of Correlation

% of questions towards PO	Level (Weight)
>=20% of total marks	3
>=10% and <20% of total marks	2
< 10% of total marks	1

CO	Skill	Bloom's	Units	Assessing tools can be used to measure CO (CIE) Marks	CIE-Total	Assessing tools can be used to measure CO (SEE) Marks	Total (CIE+SEE)	Percentage (%)	Strength of Correlation	PO/PSO
CO1	Understand	L2	1, 2,3,4,5	Objective Exam -10 Descriptive Exam - 1	11	14	25	25	3	PO1
CO2	Apply	L3	1	Descriptive Exam –1.5	1.5	14	15.5	15.5	2	PO1
CO3	Apply	L3	2,3	Descriptive Exam –7.5	7.5	14	21.5	21.5	2	PO1
CO4	Apply	L3	4,5	Descriptive Exam - 5	5	14	19	19	2	PSO1
CO5	Analyze, Individual Performance, Communication	L4	2,3,4	Assignment -5	3 1 1	14 1 1	17 1 1	19	2 1 1	PO2 PO9 PO10

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)														
CO1	3													
CO2	2													
CO3	2													
CO4													2	
CO5		2							1	1				
Average	2	2							1	1			2	

JUSTIFICATION

CO 1	**Understand the basic concepts and protocols of different layers.**
PO1	**Engineering Knowledge** Students gain strong foundational knowledge of the OSI and TCP/IP models and related protocols, which aligns with the core requirement of engineering knowledge in computing.
CO 2	**Apply Error Correction or MAC Protocol mechanism for a given scenario.**
PO1	**Engineering Knowledge** Involves application of theoretical concepts such as parity and CRC, requiring a sound understanding of mathematics and engineering principles.
CO3	**Apply various Addressing mechanisms / Routing protocols for a given network.**
PO1	**Engineering Knowledge** Students apply concepts of IP addressing, subnetting, and supernetting, which reinforce fundamental engineering knowledge.
CO4	**Apply appropriate Transport and Application layer protocols for a given context.**
PSO1	**Apply the Knowledge of Computing Skills in building the Software Systems that meet the requirements of Industry and Society.** CO4 requires applying transport and application layer protocols in real-world networking scenarios, which aligns with PSO1 by enhancing students' ability to solve domain-specific problems in computer science and engineering, particularly in network-based system design and implementation.
CO5	**Analyze the given scenario and use appropriate methods/mechanisms/protocols for designing a network.**
PO2	**Problem Analysis**

	Involves analyzing complex scenarios, identifying constraints, and proposing viable network designs.	
PO9	**Individual and team work**	
	CO5 involves analyzing and designing networks, which often requires collaboration in teams during labs or projects. This fosters both individual responsibility and teamwork, aligning with PO9.	
PO10	**Communication**	
	Students present and justify design decisions, fostering effective communication skills.	
PSO1	**Apply the Knowledge of Computing Skills in building the Software Systems that meet the requirements of Industry and Society.**	
	Directly supports the program-specific objective of applying computing and networking knowledge to solve domain-specific problems.	

Course Coordinator:

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