



SRIKRISHNA INSTITUTE OF TECHNOLOGY

(Accredited by NAAC, Approved by A.I.C.T.E. New Delhi, Recognised by Govt. of Karnataka & Affiliated to V.T.U., Belgaum)
#29, Hesaraghatta Main Road, Chimney Hills, Chikkabanavara Post, Bangalore- 560090

Department of Computer Science & Engineering

Academic Year: 2022	Semester: 5
Course Name: Computer Networks Laboratory	Course Code: 18CSL57
Total Contact hours: 36	Credits: 2
SEEMarks: 60; CIE: 40	Total Marks: 100
Course Plan Author: Sowmya C V/ Nikitha V	Date: 10/10/2022

Course Prerequisites:

1. Basic knowledge of Java.
2. Basic knowledge on NS2

Course Objectives:

1. Demonstrate operation of network and its management commands.
2. Simulate and demonstrate the performance of GSM and CDMA
3. Implement data link layer and transport layer protocols.

Course Outcomes:

CO Number	Course Outcome At the end of the course, students should be able to...	Bloom s' Level
CO1	Analyze and compare various networking protocols	L4
CO2	Demonstrate the working of different concepts of networking	L3
CO3	Implement, analyze and evaluate networking protocols in NS2/NS3 and Java programming language	L3

Program Outcomes and Program Specific Outcomes

PO, PSO	<ol style="list-style-type: none"> 1. Engineering Knowledge 2. Problem Analysis 3. Design/Development of Solutions 4. Conduct Investigations of Complex Problems 5. Modern Tool Usage 6. The Engineer and Society 7. Environment and Sustainability
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	<p>8. Ethics</p> <p>9. Individual and Teamwork</p> <p>10. Communication</p> <p>11. Project Management and Finance</p> <p>12. Life-Long Learning</p> <p>PSO1: To understand and process the principles of mathematics in the field of information Science by applying different design principles.</p> <p>PSO2: To impart the knowledge by experimental methods in multidisciplinary domains.</p> <p>PSO3: To inculcate communication skills and teamwork in developing the sustainable software' s by imparting professional and ethical values.</p>
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2.CO–POMapping

Course Outcomes	Program Outcomes														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2		2		3			3		2	2	2	2
CO2	2	2	2			3	3	2				2		2	2
CO3	2	2	2			3	3	2				2	3		2

LIST OF EXPERIMENTS:

SL. NO.	Experiments
1	Implement three node point-to-point network with duplex links between them. Set the queue size, vary the bandwidth and find the number of packets dropped.
2	Implement the transmission of ping messages/traceroute over a network topology consisting of 6 nodes and find the number of packets dropped due to congestion.
3	Implement an Ethernet LAN using n nodes and set multiple traffic nodes and plot congestion window for different source/destination
4	Implement simple ESS and with transmitting nodes in wireless LAN by simulation and determine the performance with respect to transmission of packets.
5	Implement and study the performance of GSM on NS2/NS3 (using MAC layer) or equivalent



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	environment.
6	Implement and study the performance of CDMA on NS2/NS3 (using stack called Callnet) or equivalent environment.
7	Write a program for error detecting code using CRC-CCITT (16 bits)
8	Write a program to find the shortest path between vertices using bell-manford algorithm
9	Using TCP/IP sockets, write a client-server program to make the client send the filename and to make the server send back the contents of the requested file if present
10	Write a program on datagram socket for client/server to display the messages on client side, typed at the server side
11	Write a program for simple RSA algorithm to encrypt and decrypt the data
12	Write a program for congestion control using leaky bucket algorithm

Schedule of Instruction

Expts.no	Experiments Name	Aim of the Experiment	Course Outcome	Delivery mode
1	Point-to-point network using duplex link	To implement the three node point to point network using duplex link	CO3	L
2	Ping messages	To create the transmission of ping messages and trace the route	CO3	L
3	Ethernet LAN	Implement Ethernet LAN and plot congestion window	CO3	L
4	Simple ESS	Implement simple ESS with transmitting nodes in wireless LAN	CO3	L
5	GSM	Implement and study the performance of GSM	CO3	L
6	CDMA	Implement and study the performance of CDMA	CO3	L
7	Error detecting code	Program for error detecting code using CRC-CCITT	CO2	L
8	Bellman-Ford Algorithm	To find the shortest path between vertices	CO2	L
9	TCP/IP Sockets	Client server communication using TCP/IP sockets	CO1	L
10	UDP	To display messages on client side typed at the server side	CO1	L



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11	RSA Algorithm	To encrypt and decrypt the data using RSA algorithm	CO2	L
12	Leaky Bucket	To control the congestion	CO2	L



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	Algorithm	using the leaky bucket algorithm		
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Textbooks & Reference books	
1	James F. Kurose and Keith W. Ross, Computer Networking, A Top-Down Approach, Sixth Edition, Pearson, 2017
2	Nader F. Mir, Computer and Communication Networks, 2 nd Edition, Pearson, 2014

**** The sum of total marks of CIE + SEE = 40 + 60 = 100 marks**

Faculty Incharge

DAC Chairman

HOD

**** As per the applicable scheme**