



National Institute of Technology Tiruchirappalli
Department of Computer Science and Engineering

Course Plan-PART 1			
Name of the programme and specialization	B.Tech Computer Science and Engineering		
Course Title	Networks Laboratory		
Course Code	CSLR52	No. of Credits	2
Pre-requisites Course Code	CSPC53		
Session	July 2023	Section (if applicable)	B
Faculty Name	Dr. B. Nithya	Department	CSE
E-mail	nithya@nitt.edu	Telephone No.	0431 – 2503214
Name of Course Coordinator(s) (If, applicable)	NA		
Course Type	Lab Course		

Syllabus (Approved in Bos)
<p>1. Exercises on Socket Programming using C and Java</p> <p>2. Exercises using any one of the Network Simulator</p> <p>a. Basics of Network Simulation – Introduction , Platform required to run network simulator, Backend Environment of Network Simulator, Agents and applications, Tracing</p> <p>b. Simulating a Local Area Network – Local Area Network, LAN Topologies, MAC Protocol, Taking turns, Ethernet, Ethernet Frame Structure, Ethernet Versions, Simulating a LAN using Simulator – Implementation of various MAC protocols – Setting up of various network topologies – Measurement of routing protocols</p> <p>c. Measuring Network Performance – Network Performance Evaluation, Performance Evaluation Metrics, Parameters Affecting the Performance of Networks, Performance Evaluation Techniques, Network Performance Evaluation using Simulator</p>

– Setting up of network that carries various application protocols and analyzing the performances

3. Hands on experiments on Network equipments

- a. Switches, Routers
- b. Hardware firewall

Text Books

1. W. Richard Stevens, “UNIX Network Programming – Networking APIs: Sockets and XTI”, Vol. 1, Second Edition, Prentice Hall, 1998.
2. Eitan Altman, Tania Jimenez, “NS Simulator for Beginners”, Morgan & Claypool Publishers, 2011.

Reference Book

1. Jack L. Burbank, “An Introduction to Network Simulator 3”, F first Edition, Wiley-Blackwell, 2015.

Course Objectives

- To create client and server applications using the "Sockets" API and the implementation of Data link layer protocols, Network layer protocols and TCP layer
- To conduct computer communication network simulations
- To have a hands on experience of computer network simulation and modeling techniques using NS-2/NS-3 or with any simulation software

Mapping of COs with POs

Course Outcomes(CO)	Programme Outcomes(PO)
Implement client-server applications using Sockets	1,4,5,6,7
Invoke analytical studies of Computer Networks through network simulation	1,3,4,7,11
Design a network using NS-3 toolkit or with any simulation tool and its importance in designing a real network	2,3,5,6,9,12
Measure and analyze the network parameters for a high throughput network	2,3,6,8,10
Practice experiments on Network Equipments	3,6,7,10

Course Plan – PART II

Course Overview

This course emphasizes the simulation of wired network and analysing its performance under various metrics

Course Teaching and Learning Activities

Sl. No	Week/Contact Hours	Topic	Mode of Delivery
1.	1 st week	Socket Programming 1	- Demo along with Viva
2.	2 nd week	Socket Programming 2	
3.	3 rd week	Simulating Wired LAN with various network topologies	
4.	4 th week	Setting up of network that carries various application protocols and analyzing the performances	
5.	5 th week	Implementation of UDP protocol & analyzing its performance	

6.	6 th week	Implementation of TCP protocol & analyzing its performance	
7.	7 th week	Implementation of Unicast Routing protocols & analyzing their performance	
8.	8 th week	Implementation of Broadcast Routing protocols & analyzing their performance	
9.	9 th week	Implementation of Multicast Routing protocols & analyzing their performance	
10.	10 th week	Implementation of MAC protocols & analyzing their performance	

Course Assessment Methods

Sl. No.	Mode of Assessment	Week/Date	Duration	Marks
1	Continuous assessment	Every lab section	3 hours	30
2	Record	Every lab section	3 hours	10
3	Mini Project	Demo after CT2	-	20
4	Report with less than 10% similarity index	Submission at the end of the Semester	-	10
5	End Semester Exam	As per Academic Schedule	2 hours	30
Total				100

Course Exit Survey

- Feedbacks are collected before final examination through MIS or any other standard format followed by the institute
- Students, through their Class Representatives, may give their feedback at any time to the course faculty which will be duly addressed.
- The students may also give their feedback during Class Committee Meeting

Course Policy (including plagiarism, academic honesty, attendance, etc.)

MODE OF CORRESPONDENCE (email/ phone etc)

E-mail/Phone

ATTENDANCE

- Minimum 75% is mandatory to write the end semester examination. Students having attendance 65% to 74% are eligible for the end semester exam only after attending the extra classes and submitting assignments. Students have to redo the course, if they have less than 65% of attendance.
- Medical Certificate / On Duty Certificate should be submitted immediately after rejoining.

COMPENSATION ASSESSMENT

- One compensation assessment will be given after completion of Cycle Test 1 and 2 for the students those who are absent for any assessments due to genuine reason.
- The prior permission and required document must be submitted for the absence.

ACADEMIC HONESTY & PLAGIARISM

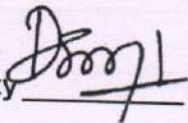
- Avoid usage of electronic devices during the class or test or exam.
- The students are expected to come out with their original solution for the problems given in the assignment. If found to copy from internet/other students, marks will be reduced.

Additional Course Information

The students can get their doubts clarified at any time with their faculty member with prior appointment.

FOR APPROVAL

Course Faculty



CC-Chairperson



HOD

