K. S. INSTITUTE OF TECHNOLOGY

An Autonomous Institution under VTU, Approved by AICTE

Department of Computer Science & Engineering

M.Tech SECOND SEMESTER SYLLABUS

Course: NETWORK PROGRAMMING LABORATORY		Semester	I
Course Code	**25MSCSL207**	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	0:2:0	SEE Marks	50
Credits	02	Exam Hours	03
Examination type (SEE)	**Laboratory**		

Course Learning Objectives:

- Create client and server applications using the "Sockets" API and the implementation of Data link layer protocol and TCP layer.
- Ability to conduct computer communication network simulations. Development of computer network simulation and modeling techniques using OPNET simulation software.

Programs List:

1.	Write a C program to implement daytime client/server program using TCP sockets
2.	Write a TCP client/server program in which client sends three numbers to the server in a single message. Server returns sum, difference and product as a result single message. Client program should print the results appropriately
3.	Write a C program that prints the IP layer and TCP layer socket options in a separate file
4.	Exercises on Socket Programming using C and Java
5.	Exercises using OPNET Network Simulator 1. Setting up of various network topologies 2. Implementation of various MAC protocols 3. Measurement of routing protocols 4. Analysis of TCP/IP protocol under various mechanisms Setting up of network that carries various application protocols and analyzing the performances.
6.	Comparison of TCP/IP, Socket, Pipes. Analyse which is the best

Laboratory Outcomes: The student should be able to:

- Understanding of the working principle of Socket programming
- Familiarization with the OPNET toolkit

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each course. The student has to secure not less than 40% of maximum marks in the semester-end examination (SEE). In total of CIE and SEE student has to secure 50% maximum marks of the course.

Continuous Internal Evaluation (CIE):

CIE marks for the practical course is **50 Marks**.

The split-up of CIE marks for record/ journal and test are in the ratio **60:40**.

- Each experiment to be evaluated for conduction with observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments designed by the faculty who is handling the laboratory session and is made known to students at the beginning of the practical session.
- Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for **10 marks.**
- Total marks scored by the students are scaled down to **30 marks** (60% of maximum marks).
- Weightage to be given for neatness and submission of record/write-up on time.
- Department shall conduct 02 tests for 100 marks, the first test shall be conducted after the 8^{th} week of the semester and the second test shall be conducted after the 14^{th} week of the semester.
- In each test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.
- The suitable rubrics can be designed to evaluate each student's performance and learning ability.
- The average of 02 tests is scaled down to **20 marks** (40% of the maximum marks).

The Sum of **scaled-down** marks scored in the report write-up/journal and average marks of two tests is the total CIE marks scored by the student.

Semester End Evaluation (SEE):

SEE marks for the practical course is 50 Marks.

SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by the University. All laboratory experiments are to be included for practical examination.

(Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. **OR** based on the course requirement evaluation rubrics shall be decided jointly by examiners.

Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly. Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.

General rubrics suggested for SEE are mentioned here, write up-20%, Conduction procedure and result - 60%, Viva- voce - 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners).

Change of experiment is allowed only once and 10% Marks allotted to the procedure part to be made zero. The duration of SEE is 03 hours.

Suggested Learning Resources:

Reference Books

- UNIX Network Programming – Networking APIs: Sockets and XTI , W. Richard Stevens Computer Networks: A Systems Approach – Network Simulation Experiments in OPNET L. Peterson and S. Davie.