

3/4 B.Tech. FIRST SEMESTER

IT5L1

COMPUTER NETWORKS LAB

Credits: 2

Lecture: --

Internal assessment: 25 marks

Lab: 3 periods /week

Semester end examination: 50 marks

Objectives:

- To provide students with a theoretical and practical base in computer networks.
- To give the basic idea about open source network simulator NS2 and how to download, install and work with NS2 using TCL programming.
- To Identify and solve the installation errors of NS2.

Outcomes:

- Ability to apply knowledge of mathematics to model and analyze some networking protocols.
- Ability to analyze, design and implement simple network topologies.
- Able to acquire knowledge of contemporary issues in computer networks.
- Ability to use techniques, skills, and modern networking tools necessary for engineering practices.

Exercises:

1. Implement the data link layer framing method character stuffing.
2. Implement the data link layer framing method bit stuffing.
3. Implementation of a Hamming distance.
4. Implement Dijkstra's algorithm to compute the Shortest path for a graph.
5. Take a sample subnet graph with weights indicating delay between nodes and obtain routing table at each node using distance vector routing algorithm.
6. Installation and usage of Network Simulator using NS2
7. Simulating a Local Area Network using NS2.
8. Measuring the networking performance using NS2.

Reference Books:

1. Data Communications and Networking, Behrouz A Forouzan, Fourth Edition. TMH.

Webreferences:

<http://iitkgp.vlab.co.in/index.php?sub=38&brch=121>.