INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPT./CENTRE**:** **Electronics and Computer Engineering**

1. Subject Code**: EC - 356**   Course Title**: Computer Networks**

2. Contact Hours: **L: 3   T: 0   P: 0**

3. Examination Duration (Hrs.):   **Theory** | **0** | **3** | **Practical** | **0** | **0** |

4. Relative Weightage**: CWS** | **15** | **PRS** | **00** | **MTE** | **35** | **ETE** | **50** | **PRE** | **00** |

5. Credits**:** | **0** | **3** | 6. Semester | | **√** | |
                                          Autumn **Spring** **Both**

7. Pre-requisite**: EC - 252**

8. Subject Area**: DCC**

9. Objective: To familiarize students with the layered design and protocols of computer networks, including the Internet.

10. Details of the Course:

Sl. No.	Contents	Contact Hours
1.	**Introduction:** Use of computer networks, network hardware and software; Layering, reference models and their comparison.	7
2.	**Physical Layer:** Theoretical basis for data communication, transmission media and impairments, switching systems.	6
3.	**Data Link Layer:** Design issues, framing, error detection and correction, elementary and sliding window protocols, examples of data link layer protocols.	6
4.	**Medium Access Control Sub Layer:** Channel allocation problem, multiple access protocols, Ethernet, data link layer switching.	6
5.	**Network Layer:** Design issues, routing algorithms, congestion control, QOS, internetworking, IP and IP addressing.	6
6.	**Transport Layer:** Transport service, elements of transport protocols, TCP and UDP.	6
7.	**Application Layer Overview:** Email, DNS, WWW.	5
	Total	**42**

11. Suggested Books:

Sl. No.	Name of Books / Authors	Year of Publication
1.	Tanenbaum, A.S, "Computer Networks", 4th Ed., Pearson Education.	2003
2.	Forouzan, B.A., "Data Communication and Networking", 4th Ed., Tata McGraw-Hill.	2006
3.	Stallings W., "Data and Computer Communication", 8th Ed., Prentice-Hall.	2007
4.	Kurose, J.F. and Ross, K.W., "Computer Networking: A Top-Down Approach Featuring the Internet", 3rd Ed., Addison Wesley.	2004
5.	Comer, D.E. and Droms, R.E., "Computer Networks and Internets", 4th Ed., Prentice-Hall.	2004