

UNIVERSITY OF MADRAS
B.Sc. DEGREE COURSE IN COMPUTER SCIENCE
SYLLABUS WITH EFFECT FROM 2020-2021

BCE-CSC09

CORE: COMPUTER NETWORK

(Common paper to B.Sc. Software Applications-VI Sem., B.Sc. Computer Science with Data Science, Computer Science with AI & B.C.A.)

III YEAR / V SEM

OBJECTIVES:

- To understand the concept of Computer network
- To impart knowledge about networking and inter networking devices

OUTCOMES:

- Analyze different network models
- Describe, analyze and compare a number of data link, network and transport layer
- Analysing key networking protocols and their hierarchical relationship in the conceptual model like TCP/IP and OSI

UNIT - I

Introduction – Network Hardware - Software - Reference Models - OSI and TCP/IP Models - Example Networks: Internet, ATM, Ethernet and Wireless LANs - Physical Layer - Theoretical Basis for Data Communication - Guided Transmission Media.

UNIT - II

Wireless Transmission - Communication Satellites - Telephone System: Structure, Local Loop, Trunks and Multiplexing and Switching. Data Link Layer: Design Issues - Error Detection and Correction.

UNIT - III

Elementary Data Link Protocols - Sliding Window Protocols - Data Link Layer in the Internet - Medium Access Layer - Channel Allocation Problem - Multiple Access Protocols - Bluetooth.

UNIT - IV

Network Layer - Design Issues - Routing Algorithms - Congestion Control Algorithms - IP Protocol - IP Addresses - Internet Control Protocols.

UNIT - V

Transport Layer - Services - Connection Management - Addressing, Establishing and Releasing a Connection - Simple Transport Protocol - Internet Transport Protocols (ITP) - Network Security: Cryptography.

TEXT BOOK :

1. A. S. Tanenbaum, “*Computer Networks*”, Prentice-Hall of India 2008, 4th Edition.

REFERENCE BOOKS:

1. Stallings, “*Data and Computer Communications*”, Pearson Education 2012, 7th Edition.
2. B. A. Forouzan, “*Data Communications and Networking*”, Tata McGraw Hill 2007, 4th Edition.
3. F. Halsall, “*Data Communications, Computer Networks and Open Systems*”, Pearson Education 2008.
4. D. Bertsekas and R. Gallager, “*Data Networks*”, PHI 2008, 2nd Edition.
5. Lamarca, “*Communication Networks*”, Tata McGraw Hill 2002.

WEB REFERENCES:

- NPTEL & MOOC courses titled Computer Networks
- <https://nptel.ac.in/courses/106106091/>