



Course Plan

CCN (Computer and Communication Networks)

Institute Core (IC), Spring Semester (Jan-April 2021)
IIIT Sri City, Chittoor.

1. Introduction to media:

Guided transmission media: twisted pair, coaxial cable, fibre optic cable.
Multiplexing: FDM and TDM.

Duration: 3 classes (1 week)

2. Switching: Packet switching and circuit switching, Internet protocol stack, ISO OSI reference model, Delay, loss and throughput in packet switched networks.

Duration: 6 classes (2 weeks)

3. Application Layer: The web and HTTP, FTP, Electronic mail: SMTP, Domain name systems, Peer-to-peer networks.

Duration: 6 classes (2 weeks)

4. Transport Layer: Transport layer services, Multiplexing and demultiplexing, Principles of reliable data transfer: Go-Back-N and Sliding window, TCP, UDP, Congestion control.

Duration: 6 classes (2 weeks)

5. Basics of Wireless and Networks:

Cellular fundamentals, handover, interference, Next generation wireless networks, Intro to self optimization networks (SON)

Duration: 3 classes (1 week)

6. Network Layer: Services of network layer, Virtual circuit and datagram networks, Internet protocol

Duration: 6 classes (2 weeks)

7. Network Routing protocols: link-state routing and distance vector routing. Hierarchical routing, Routing in the internet, broadcast and multicast routing.

Duration: 6 classes (2 weeks)

8. Data Link Layer: Link layer services, Error detection and correction, Multiple access protocols: ALOHA, Slotted ALOHA, CSMA, CSMA/CD, Ethernet. WiFi: IEEE 802.11

Duration: 6 classes (2 weeks)

BOOKS:

- 1) "*Computer Networking: A Top-Down Approach*", James F. Kurose and Keith W. Ross, 6th Edition, Addison Wesley .
- 2) "*Wireless Communication*" by T.S. Rappaport

Reference Books:

- 1) "*Computer Networks*" by A.S.Tanenbaum, D.J.Witherall, 5th edition, Pearson

Examination Weightage:

- Mid-1 - **25%**
- Class Participation Quizzes - **15%**
- **Programming assignment(s) – 10%**
- End Exam - **40%**
- Scheduled Quiz - **10%**