CS 356 Introduction to Computer Networks

Textbook
Kurose & Ross, Computer Networking: A Top-down Approach, 7th Ed.

Syllabus schedule
Week 1:
What is the Internet? Topology View, Services View, Protocol View, Examples
Functional Components: Hosts, Routers, Links
Performance, Availability and Reliability
History of the Internet

Week 2:
Protocol Design: Concepts
Application Layer: HTTP
Socket Programming (TCP)

Week 3:
Application Layer: DNS
Socket Programming (UDP)
Protocol Design: Review

Week 4
Protocol Design: Transport Service Characteristics
Transport Services: UDP and TCP

Week 5:
Protocol Design: Concepts
Network Layer: IPv4, ICMP
Application Layer: DHCP
Networking Utilities: ping, traceroute

Week 6:
Network Layer: IPv6, NAT
Protocol Design: Review

Week 7:
Link-layer and LANs: Ethernet, L2 switching, ARP, Duplicate Address Detection
A day in the life of a packet

Week 8:
Mid-term Exam

Week 9:
Routing: Link-state, Distance-Vector, OSPF, BGP

Week 10:
Wireless and Mobility
Fixed Internet access

Week 11:
Tunneling and VPN
Security

Week 12:
Network Management
Software Defined Networks

Week 13:
Video Streaming and Content Distribution Networks
Data Center Networking

Week 14:
Review