

Course number and name: **CS 01210: Introduction to Computer Networks and Data Communications**
Credits and contact hours: 3 credits / 3 contact hours
Instructor's or course coordinator's name: Mike Chu
Text book, title, author, and year: Kurose and Ross, Computer Networking: A Top-Down Approach, 7th Edition, Addison Wesley, 2017.

Specific course information

Catalog description: This is an introductory computer networks course for students that are not majoring or minoring in computer science. This course will examine the basics of data communication and computer networks and will cover such topics as history and evolution of data communications, layered network architectures, physical and data link layers, introduction to internetworking, the Internet, IP protocols, basics of TCP and UDP transmission protocols, standard network applications and basics of network security, network utility software, and configuring local area networks in a popular operating system.

Prerequisites: None

Specific goals for the course

1. The student will understand layered architectures.
2. The student will model the performance of network components or systems.
3. The student will understand the operation of important application, transport and network layer protocols.
4. The student will describe some basic security issues.

Required list of topics to be covered

1. Networking models (OSI and IP)
2. Network media (wired, optical, and wireless)
3. Network Architectures and topologies (PAN, LAN/WAN, DMZ, Enclaves, VLAN, NAT, subnetting, supernetting)
4. Common Network Devices and their role in the network. (Routers, Switches, Hosts, VPNs, Firewalls)
5. Network Protocols introduction (IP, TCP, UDP, ICMP)
6. Network Services and protocols introduction (DNS, NTP, VLAN, etc.)
7. Network Applications and protocols introduction (SMTP, HTTP, VoIP, SSH, etc.)
8. Use of basic network administration tools
9. Overview of Network Security Issues
10. Network switching (Ethernet)

- a. ARP and RARP
- 11. IPv4 suite
 - a. IPv4 Addressing
- 12. IPv6 Suite
 - a. IPv6 Addressing
- 13. Routing in IPv4 and v6
 - a. Routing tables and metrics
- 14. Network Naming
 - a. DNS
 - b. NetBIOS
- 15. Layered services design