

Brooklyn College
Department of Computer & Information Sciences

CISC 7334 [*749X] Computer Communication Networks

37½ hours plus conference and independent work; 3 credits

Advanced concepts in computer organization and an introduction to the fundamental principles of computer communication networks. Network structure and architecture. The ISO Reference Model. Protocols and their software implementation. Point-to-point, satellite, radio, and local area networks. Routing, congestion, and flow control algorithms. Examples of current networks.

Textbook:

Data and Computer Communications, 7th ed. By: W. Stallings (Prentice-Hall).

Syllabus:

Lectures 1 & 2:

Introduction to Computer Networks and Protocols: Types of Networks; Topological Structures; Protocol Concepts; The OSI Model; The TCP/IP Protocol Architecture.

H.W. - Chapters 1, 2 & 10:

Lectures 3 & 4:

Data Link Concepts: Issues & Requirements; Flow Control Methods; Error Control Methods. Data Link Protocols: HDLC; SDLC; LAPB; LAPD; LAPF; SLIP; PPP.

H.W. - Chapter 7:

Lecture 5:

Network Layer Concepts: Design Issues and Requirements; Virtual Circuit and Datagram

Services; Network Service Definitions; Network Access Protocols: X.25.

H.W. - Chapter 10:

Lecture 6:

Frame Relay Networks: Frame Relay Protocol Architecture; Call Control; User Data Transfer; Network Function; ITU-T Recommendations: Q.931/Q.933, Q.921/Q.922.

H.W. - Chapters 10 & 13:

Lecture 7:

Local Area Networks: LAN Topologies and Transmission Media; LAN Protocol Standards: IEEE 802 and FDDI.

H.W. - Chapters 15 & 16:

Midterm Examination

Lectures 8 & 9:

Internetworking: Design Requirements; Architectural Approaches: Gateways, Routers, & Bridges; Bridged LANs; Network Layer Structure, Internet Protocols: IP, ICMP, IPv6, ICMPv6; Internet Routing Protocols: ARP, RARP, RIP, OSPF, EGP, BGP.
H.W. - Chapters 18 & 19:

Lecture 10:

Transport Layer Protocols: Design Requirements; Transport Layer Services; Transport Layer Protocols: TCP, UDP.
H.W. - Chapter 20:

Lectures 11 & 12:

Application Protocols: Directory Services: DNS; Remote Log-on: TELNET; File Transfer: FTP; Electronic Mail: SMTP, MIME, POP; Network Management: SNMPv2.
H.W. - Chapter 22:

Lecture 13:

The World Wide Web: Uniform Resource Locators (URLs); Web Browsing: HTTP, HTML, CGI, JAVA Applets;
H.W. - Chapter 22: