

COURSE OUTLINE OF RECORD

Dept., Number	CSC 4389	Course Title	Computer Communication Networks
Semester Hours	3		
Year	2006	URL (if any):	

Current Catalog Description:

This course covers advanced concepts of computer communication networks, including packet switching, local area networks, wide area networks, network protocols and architectures. Students will engage in projects that may include communication architecture implementation, networking technology assessment, network performance evaluation, and network administration. Prerequisite: CSC 3351.

Textbook:

Computer Networking: A Top-Down Approach Featuring the Internet – 3rd Edition, James F. Kurose and Keith W. Ross, Addison Wesley, 2005, ISBN: 0-321-22735-2.

Course Goals:

1. To understand the state of the art in network protocols, architectures and applications.
2. Understand the design and implementation requirements in computer networking.
3. To provide experience in internetworking with TCP/IP.

Major Topics Covered in the Course(number of weeks):

1. General: Structure of networks and the internet, circuit, packet and message switching, routing, physical media, types of delay, internet protocol stack, internet backbone, NAPs (Network Access Points) and ISPs (7.5 hours)
2. Application Layer: Structure of networking applications, Web and Web caching, FTP (File Transfer Protocol), Electronic mail, DNS (Domain Name Service), socket programming (7.5 hours)
3. Transport layer: Transport layer principles, multiplexing and demultiplexing, UDP (User Datagram Protocol), principles of reliable data transport, TCP (Transmission Control Protocol), flow control, principles of congestion control, TCP congestion control (6 hours)
4. Network Layer: Network layer services, datagram and virtual circuits, routing principles, link state routing algorithms, distance vector routing algorithms, hierarchical routing, Internet Protocol (IP), IP addressing, IP transport, fragmentation and assembly, ICMP (Internet Control Message Protocol), routing on the internet, RIP (Routing Information Protocol), OSPF (Open Shortest Path First), router internals, IPv6 (4.5 hours)
5. Link Layer and Selected topics: Error Detection and Correction Technique, MAP, Ethernet, PPP, LAN, WAN, Wireless Communications (4.5 hours)

Dept., Number	CSC 4389	Course Title	Computer Communication Networks
----------------------	----------	---------------------	---------------------------------

Estimate Curriculum Category Content (Semester hours)

Area	Core	Advanced	Area	Core	Advanced
Algorithms			Data Structures		
Software Design			Prog. Languages		
Comp. Arch.					