

COURSE DESCRIPTION

Department and Course Number	CS 447	Course Coordinator	Raj Pamula
Course Title	Computer Networks	Total Credits	4

Current Catalog Description:

Overview of principles and concepts in computer networks and distributed systems; network structures, topology, architecture, and related software.

Textbook:

Lammle, Todd., *CCNA: Cisco Certified Network Associate Study Guide, Deluxe Edition*, Sybex Inc., 2001.

References:

Comer, Douglas, *Computer Networks and Internets, 4th Edition*, Prentice Hall, 2003.

Course Goals:

At the end of the course, students have a good understanding of

- Computer network concepts
- Computer network devices
- Computer network protocols

These course goals contribute to the success of **Student Learning Outcomes 1.b, 1.f, 2, 5, and 6**.

Prerequisites by Topic:

- Operating Systems
- Probability and Statistics
- High level programming language

Major Topics Covered in the Course:

- Networking concepts
- Network devices such as router, switch, bridge, hub, transceiver, NIC, cabling
- Network topologies such as Ethernet, token ring, ATM, xDSL, Frame Relay
- Network protocols such as TCP/IP, ARP, ICMP, SNMP, and DHCP
- Routing protocols such as RIP, OSPF, EIGRP
- Access Control Lists
- Configuration of Cisco router using Cisco IOS 12.2
- Configuration of Cisco switches

Laboratory Projects (specify number of weeks on each):

Students complete 4-5 lab projects (two weeks each) and gain practical experience in a networking lab through the following lab projects:

- Configure Cisco routers
- Configure Cisco Ethernet switches
- Capturing and decoding Ethernet packets.
- Special project

Estimate Curriculum Category Content (Quarter Hours)

Area	Core	Advanced	Area	Core	Advanced
Algorithms			Data Structures		
Software Design		1.0	Prog. Languages		1.0
Comp. Arch.		2.0			

Oral and Written Communications:

Students are required to submit source code and software documentation of their programming projects.

Social and Ethical Issues:

No significant component.

Theoretical Content:

- Introduction to networking concepts.
- Introduction to networking protocols.

Problem Analysis:

Networking design considerations.

Solution Design:

Provides practical hands-on experience through the use of a computer network lab and network simulation software.