

COE 441: Local Area Networks

Instructor: Dr. Uthman Baroudi
Lecture: Sunday, Tuesday 10:00 AM – 11:15 AM
Location: Bldg. 24-146
Office hours: Sat/Mon. 10:00 AM – 12:00 AM

Course Description

Explores the current capabilities and trends in Local Area and Metropolitan Area Networks (LANs and MANs) with additional focus on the issues of internetworking network systems or subnets. Topics include: Topologies and transmission media, LAN and MAN architectures and performance. LAN standards from IEEE 802. Storage and other local area networks, e.g., Fiber Channel, wireless. Internetworking alternatives, bridges, network switches, routers, and gateways. General LAN management and security.

Prerequisite: COE 342, ***COE 442 is strongly recommended***

Learning Outcomes:

The course focuses on current LANs and MANs and the newer and evolving high-speed technologies and protocols. At the end of the course a student will understand:

- ?? Basic network topologies and transmission media;
- ?? Logical Link Control services;
- ?? Traditional LAN technology (Ethernet, etc.);
- ?? High speed LAN/MAN technologies, e.g., Ethernet family, FDDI;
- ?? Fiber Channel;
- ?? Wireless LANs;
- ?? LAN/MAN switching and routing;
- ?? Network design principles and performance issues;
- ?? Internetworking with TCP/IP

Homework

Collaboration is a very good thing. Students are encouraged to work together and some programming projects will require a team effort with everyone expected to contribute. On the other hand, cheating is considered a very serious offense. Please don't do it! Concern about cheating creates an unpleasant environment for everyone.

⚠️Late homework: Late turn-in will not be tolerated. Paper homeworks are due by the beginning of class.

Class Participation

A primary goal of this course is to encourage discussion among the class members. Most ideas in systems are developed through such healthy discussions. Students are encouraged to ask questions, suggest new ideas, point out weaknesses and make general observations. Even though the questions are expected to be related to the topic, students will not be judged by the quality of questions that they ask.

Textbook:

?? William Stallings, *Local Area Networks*, sixth edition, Prentice-Hall Publisher

References:

??

Grading policy:

- ?? Assignments 10 %
- ?? Quizzes 15 %
- ?? Projects 15 %
- ?? Midterm exam 25 %
- ?? Final exam 35 %

Proposed Outline (Subject to Change)

Week No.	Date	Topic
1	14.09.02	Introduction: LANS, protocols, LAN design issues, Layered models (Chapter 1, 2 & 3)
2	21.09.02	LAN Technologies and Transmission media: Bus, Ring, Star technologies (Chapter 4)
3	28.09.02	LAN protocols: MAC & LLC (Chapter 5 & 6)
4	05.10.02	LAN protocols (Continued)
5	12.10.02	LAN standards: Ethernet (IEEE 802.3) (Chapter 7)
6	19.10.02	LAN standards: Token ring (IEEE 802.5) (Chapter 8)
7	02.11.02	LAN standards: Fiber Channels (Chapter 9)
8	09.11.02	Wireless LANs (Chapter 10)
	12.11.02	Midterm Exam
9	16.11.02	Wireless LANs (Continued)
		Ramadaan & Eid Break
10	14.12.02	ATM LANs (chapter 11)
11	21.12.02	ATM LANs (Continued)

12	28.12.02	Internetworking and Routers (Chapter 13)
13	04.12.02	Network Management (Chapter 14)
14	11.01.03	Network Security (handout)
15	18.01.03	Examination Period