

**ECE 471: DATA COMMUNICATIONS AND COMPUTER NETWORKS
Fall 04**

Professor: Paul Richardson

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**Class Hours: Tues(9:20 am - 11:10 pm)
 Thur (9:20 am - 11:10 pm)**

Office Hours Tue & Thur 8:10am – 9:10am and by appointment

Textbook: Halsall, “*Data Communications, Computer Networks, and Open Systems*”
(4th Edition) Addison Wesley, 1996

References Stallings, W., "Data and Computer Communications", Macmillan , 1988.

Coordinator Prof. P. Richardson, Dept. of Elec. & Comp. Eng.

Prerequisites by Topic:

- 1) Knowledge of a high level programming language (preferably C).
- 2) Logic design.

Topics:

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| 1) Introduction to ISO/OSI standard models | (3 hours) |
| 2) Data transmission media and signal format | (6 hours) |
| 3) Modulation and demodulation | (6 hours) |
| 4) Computer Communication Protocols | (6 hours) |
| 5) Error control and error analysis | (6 hours) |
| 6) Data compression techniques | (4 hours) |
| 7) Local area network, topology, hardware and MAC | (8 hours) |
| 8) Exams | (3 hours) |
| 9) Project Supervision | (14 hours) |

Computer Usage: Micro computers and electronic equipment are used for design projects

Laboratory Projects: Computer network design projects are assigned

Term Reading: Course Notes and Chapters 1-6, 9, 11 of the Halsall text

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Fall 2004**

Grading

Category	Comments	Dates	Points
Design Assignments	3 @ 50 each	TBA	150
Quizzes	4 @ 25 each	TBA	100
Test 1	1.5 hours	TBA	100
Test 2	2 hours	TBA	150
Total			500

1999-2000 Catalog Data:

ECE 471: Computer Networks and Data Communications, 3 credits.

Prerequisites: ECE 372

Hardware and software techniques used in interfacing between computers and other computers or devices. Data transmission techniques and protocols. Introduction to popular local area network protocols. Forward Error Control Techniques and Data Compression. Introduction to wireless communications with focus on major challenges and obstacles and the cellular phone infrastructure. Term projects involve developing a data link layer protocol for interfacing and communication with microprocessors.

Covers fundamentals of computer networks and data communications. Layered architectures are introduced and studied. Physical layer issues are examined, to include transmission media, transmission impairments, characteristics of modulated signals and baseband signals, and principals of transceiver design.

Flow control and error control are studied within the context of local area networks(LAN) protocols are described and some design issues are studied. TCP/IP protocol stack is examined and principals and concepts of wireless communications are introduced.

Estimated ABET Category Credit

Engineering Science: 1 Credit or 33%

Engineering Design: 2 Credits or 67%

Prepared By: Paul Richardson, Oct 2001

Modified By: