

SANTA CLARA UNIVERSITY
Department of Computer Engineering

COEN 001

Understanding Information Technology

Fall 2002

Web Page:	http://cseserv.engr.scu.edu/nquinn/coen001/	
Instructor:	Dr. Neil R. Quinn Jr.	Homework: 20%
Office:	Center for Science Technology and Society	Presentation: 20%
Phone:	554-5723	Midterm #1: 20%
Office Hours:	By arrangement	Midterm #2: 20%
E-Mail:	nquinn@scu.edu	Final Exam: 20%

Text: D. Cyganski, J. Orr, *Information Technology - Inside and Outside*, Prentice Hall, ISBN 0130114960.

Lecture: TR 09:55 – 11:40 ENGR 304

Objectives: Students will gain an overview of the engineering behind the modern **information infrastructure**. The major topic areas include:

- I. What is the Information in the Information Revolution?
- II. Fundamentals of Binary Representation
- III. Graphics and Visual Information
- IV. Data Compression
- V. Bandwidth and Information Theory
- VI. Transmission and Storage Technology
- VII. Networks and the Internet

The intended outcomes are an intuitive understanding of the workings of information technology; an appreciation for the relationships between the different elements of the modern information infrastructure; and an ability to put new developments in that technology in context, to better understand how they function and why they're important. Systems thinking, in the sense of awareness of the components of information systems, their interconnections, and how individual component performance affects overall performance, is a primary objective. Students will also gain understanding of both the positive and negative impacts of some of these technologies on individuals and society.

This course satisfies the University Core requirement in Technology.

Prerequisites: None.

Midterms and Exams: All exams are closed book and closed notes. However, you may bring one 8.5"x11" piece of paper with anything written on either side. Missed midterms or exams may not be taken later without a doctor's excuse or prior approval.

Homework: Due at the beginning of class on the date due. You are encouraged to discuss homework problem statements with others; however, all actual solutions must be that of the individual student. Violation will result in zero credit for the assignment. Homework assignments will not be accepted after the due date. Exceptions only by prior approval.

Attendance: **Attendance at each and every class is mandatory!!! I reserve the right to deduct 5% of your grade for each class missed.** Permission for missing a class must be granted prior to the class missed.

TENTATIVE CLASS SCHEDULE

<i>Week</i>	<i>Day</i>	<i>Topics</i>	<i>Reading</i>
1 Sep. 24	T	Course overview; 1. What is the Information in the Information Revolution?	Chapters 1 & 2
	R	2. The World Wide Web: A Unique Product of the Information Age	
2 Oct. 01	T	II. Fundamentals of Binary Representation 3. Representing Information in Bits	Chapters 3 & 4
	R	4. The Need and Basis Data Protocols	
3 Oct. 08	T	III. Graphics and Visual Information 5. From the Real World to Images and Video	Chapters 5 & 6
	R	6. Computer Graphics and Virtual Reality	
4 Oct. 15	T	IV. Data Compression 7. Compressing Information	Chapters 7, 8 & 9 Paper Proposal Due
	R	8. Image Compression 9. Digital Video	
5 Oct. 22	T	Midterm #1 (20%)	Chapters 10
	R	V. Bandwidth and Information Theory 10. Audio as Information	
6 Oct 29	T	11. Sampling of Audio Signals 12. Digital Audio	Chapters 11, 12 & 13
	R	13. The Telephone System: Wired and Wireless	
7 Nov 05	T	VI. Transmission and Storage Technology 14. What Is Bandwidth and How Is It Used?	Paper Outline Due Chapters 14, 16 & 17
	R	16. Radio-Frequency and Satellite Systems 17. Large-Capacity Storage	
8 Nov 12	T	VII. Networks and the Internet 18. Telephone and Data Communications Networks 19. The Local Area Network	Chapters 18 & 19
	R	Midterm #2 (20%)	
9 Nov 19	T	20. Organization of the Internet 21. Electronic Commerce and Information Security	Chapters 20, 21 & 22
	R	22. Voice over IP and the Convergence	
10 Dec 03	T	Final Paper Due (20%)	
	R	Student presentations; summary discussions	
Dec 10	T	Final Exam (20%);, 9:10 a.m. -12:10 p.m.	