

ISE 390

Special Topic

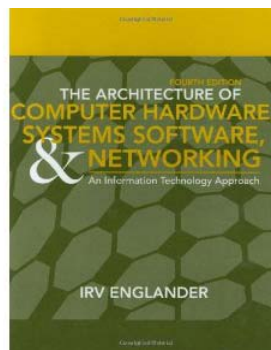
Introduction to Computer Organization

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General Class Issues

- Dr. R. Kelly (contact info on class Web site)
- Hands-on class - Trans lab
- Text
 - www readings (list on a page in class Web site)
 - Course text - The Architecture of Computer Hardware, Systems Software, and Networking, 4th Edition



Note that we are using the 4th edition

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Class Web Site

- www.cs.sunysb.edu/~ise390
- Check it regularly for
 - Syllabus
 - Office hours / location / e-mail addresses
 - Assignments and lecture code
 - Class notes (pdf) - Print notes before each class
 - References
 - Lots more



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Course Description

- This course introduces computer organization to students interested in the relationship between computer hardware and information systems. The course examines components found in high use computing devices such as desktop computers, smart phones and navigation systems. The focus of the examination is understanding the underlying technology of each component, along with price/performance curves and competing technologies. Upon completion of the course, student should be proficient in reading device specifications, particularly the functional and performance implications. Students should also be able to use that knowledge to compare competing devices.

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Course Objectives

- Understand how numerical and non-numerical data are represented in digital computers,
- Understand the functions performed by components of a computer-based device,
- Indicate strengths and weaknesses inherent in different components and different architectures, and
- Understand the specification sheet of a typical computer-based device.

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Reasons for Course Objectives

- Prepare you for later ISE courses dealing with systems administration
- Allow you to be conversant in computer hardware terminology

Important for business analyst
and systems administration
positions

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Special Topic Course

- Trial version of a new course (ISE218)
- Small enrollment
- Flexibility in course material and presentation

In-progress feedback on the course is very important

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Grading

- A, B, C ... grades
- Grade basis
 - Exams (including quizzes)
 - Class presentations
 - Oral communications
 - Project
- Exam questions will be "easy" if you thoroughly understand the textbook and class notes
- In-progress grades will be available on the class Web site, make sure that you check it regularly
- Grade distribution resembles College overall grade distribution

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Grading Formula

- All final grades are determined by a formula - applied equally to all students
- Sample:

ID	HW1	Quizzes				Total	Norm.	Class Participation			Total	Norm.	Mid-Term Score	Debate Score	:t	Total	Final Grade	
		1	2	3	4			5	Case 1	Case 2								Questions
1	S	5	8	10	10	38	95	3	3		6	86	82	88	88	88	A	
2	S	1	5	9	10	0	25	63	3	2		5	80	67	72	83	73	B
3	S	1	7	10	10	0	28	70	3	1	3	7	92	86	88	84	83	A
4	S	0	7	10	10	0	27	68			2	2	62	85	88	84	80	B+
5	S	1	6	6	10	0	23	58				0	50	80	75	65	67	C

You will get your ISE390 ID
in an e-mail from your TA

Grading

- Final grades are calculated based on a formula (no subjective grading)
- Formula weights all the components of the class
 - Exams - mid-term (20%) and quizzes (30%)
 - Class presentations (10%)
 - Oral communications (10%)
 - Project (30%)
- Final grade is based on your total score (the higher the score, the higher the grade)

Class Presentation Groups

- You may work in a group of up to 3 students (for the entire semester)
- Make sure that all 3 students in your group are assigned to the same TA by:
 - Sending me an e-mail with the names and IDs of all the students in the group before you submit your first assignment
 - Verifying (on the unofficial class roster) that you are all assigned to the same TA

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Final Project

- A detailed analysis of a computing device of your choice.
- You will present your work in class, using PowerPoint slides.
- The presentation will be approximately 30 minutes including questions.
- You will demonstrate an understanding of all components, comparison with other components, and a projection of future cost and features

iPod nano (3rd generation) - Technical

Last Modified: October 13, 2008
Article: 3714

Storage/capacity	4GB (1,000 songs)	8GB (2,000 so
Color	Silver	Silver, Bfa
Battery life	Up to 24 hours of music playback; up to 5 hours o	
Display	2-inch (diagonal) color LCD with LED backlight	
Ports	Dock connector, stereo minijack	
Connectivity	USB through dock connector; component and com connector (with AV cables or kit, sold separately); jack	
Charge time	About 3 hours (1.5-hour fast charge to 80% capa	
Audio support	AAC (8 to 320 Kbps), Protected AAC (from iTunes Kbps), MP3 VBR, Audible (formats 2, 3, and 4), Az	
Photo support	Syncs iPod-viewable photos in JPEG, BMP, GIF, TIF formats	
Video support	H.264 video, up to 1.3 Mbps, 640 by 480 pixels, 3 Low-Complexity version of the H.264 baseline Pro 160 Kbps, 48KHz, stereo audio in .m4v, .mp4, .am video, up to 3.0 Mbps, 1920 by 1080 pixels, 30 frame Profile up to Level 3.0 with AAC-LC audio up to 16 in .m4v, .mp4, and .m4p file formats; MPEG-4 vid 480 pixels, 30 frames per second, Simple Profile, 4 Kbps, 48KHz, stereo audio in .m4v, .mp4, and .m	
Size	2.73 x 2.06 x 0.26 inches (69.8 x 52.2 x 6.5 mm)	
Weight	1.74 ounces (49.2 grams)	
Included accessories	Earphones, USB cable, dock adapter	

Size and weight
 ■ Height: 2.73 inches (69.8 mm)
 ■ Width: 2.06 inches (52.3 mm)
 ■ Depth: 0.26 inch (6.5 mm)
 ■ Weight: 1.74 ounces (49.2 grams)

In the box
 ■ iPod nano

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How to Get Help

- Don't get stuck - ask for help
- Send me general e-mail if you are having trouble
- See me during office hours (or by appointment or just stop by)

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How to Learn the Material

- Read and understand the textbook.
- Do independent Web searches
- Carefully examine and review the specs for your own devices (laptop, cell phone, etc.)
- Attend class / review the on-line class notes

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Lectures

- Lecture slides will be available at the class Web site before each lecture
- Print a copy of the slide handout before class and use it to make notes
- Be sure to review the slides before each exam

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Knowledge of Hardware

- Important in:
 - Product selection
 - Predicting life of device
 - Understanding system performance
 - Communicating with vendors / internal CS staff

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Topics

- Number systems
- Data formats
- Representing numerical data
- CPU
- I/O Devices
- Data communications
- Wireless communications
- User view of OS
- Specialized components
- Integrated systems
- Case studies

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Limited Emphasis on

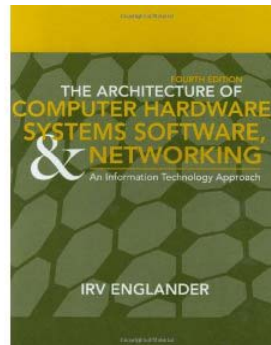
- Hardware design
- Implementation details

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Textbook

- Very well written
- Targeted to ISE majors
- Focuses on general architecture issues
- Does not address
 - Newer component
 - Future components
 - Price / performance



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Assignment # 1

- Part 1
 - Send me an e-mail (Hi!, name id#, "I can't (or can) read the class notes", etc.)
 - Put "ISE390 - HW#1" in the subject line of the e-mail message

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