

Department of Electrical and Computer Engineering

Name of Instructor: Dr. Charles Kim

Course number	Course Title	Semester
EECE 417	Computer Systems Architecture	Spring 2007

CATALOG DATA: EECE-417 Computer Systems Architecture, 3 Credits: Core concepts of computer architecture are introduced. Instruction Set Architectures (both CISC and RISC) is studied. Microprogramming, pipelining, memory systems and hierarchy, and I/O architectures are studied. Core concepts of interaction between hardware and software at a variety of levels are stressed for understanding the fundamentals of computing. Assembly language programming for MIPS-32 architecture will be exercised for the class. **Prereq: EECE-211, Course Offering: SPRING.**

TEXTBOOK: Computer Organization and Design 3rd ed., David A. Patterson and John L. Hennessy, Morgan Kaufmann Co., 2005. ISBN: 1-56860-604-1

REFERENCES: Computer Architecture: A Quantitative Approach, John L. Hennessey and David A. Patterson, Morgan Kaufmann Co.
Inside the Machine: An Illustrated Introduction to Microprocessors and Computer Architecture, John Stokes, No Starch Press, 2007.

COORDINATOR: Dr. Charles Kim
LKD3121A, 202-806-4821, ckim@howard.edu

GOALS:

1. Understanding of Computer Abstraction and Technology
2. Understanding of Instructions of Computers
3. Understanding and Practice of MIPS Instructions
4. Understanding Number Representation including Floating Point Numbers
5. Understanding Computer Performance
6. Understanding Logic and Data Path control
7. Understanding Performance Enhancement in Computing

TOPICS:

1. Computer Abstraction and technology
2. Instructions of Computers
3. Arithmetic for Computers
4. Assessing and Understanding Performance
5. Datapath and Control
6. Enhancing Performance with Pipelining
7. Memory Hierarchy
8. Storages and I/O (optional)
9. Multiprocessors (optional)
10. Intel Pentium Processors (optional)

GRADING POLICY:

HW & Class Assignment	20%
Coding Practices	20%
Coding Project	20%
Mid-Term Exam	20%
Final Exam	20%

Final Course Grade:

A:	100 - 90
B:	89 - 80
C:	79 - 70
D:	69 - 60
F:	<59

ADA:

If you want to be identified as a person with disability and need accommodations under the Americans with Disabilities Act (ADA) of 1990, please make an appointment

ABET OUTCOMES AND ASSESSMENT:

- (c) Students should obtain an ability to design a system, component, or process to meet desired needs. Metric- Coding project grading.
- (g) Students should obtain an ability to communicate effectively. Metric - Project Report and Presentation (Written and Oral) grading.
- (j) Students should obtain knowledge of contemporary issues. Metric - Grading of assignment of current technology in computer architecture related topic.
- (k) Students should obtain an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. Metric - The comfortable usage of SPIM emulator and other tools (The overall grade of coding practice)
- (n) Students should obtain an ability to use computers and Internet as means of enhancing engineering research and development. Metric - The Research for the contemporary issues.