Dongseo University

Division of Computer Engineering

Computer Architecture

Instructor(s): Hyotack Lim
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Classroom:
Office Hours: by appointment

Course Description:
This class introduces students to the basic concepts of digital systems, including analysis and design. Both combinational and sequential logic will be covered. Students will gain experience with several levels of digital systems, from simple logic circuits to hardware description language.

This class introduces students to the low-level details of how computers work inside, such as instruction sets, memory, and so on. Therefore, the basic structure of a digital computer will be discussed and the organization of the Control unit, the Arithmetic and Logical unit, the Memory unit and the I/O unit will be studied in detail.

Course Goals & Objectives:
At the conclusion of this course, the successful (passing) students will be able to
- Obtain basic knowledge of Basic Computer Organization and Design; Computer Evolution and Performance.
- Have good understanding of the Central Processing Unit: Data Representation, Fixed Point Numbers, and Computer Arithmetic.
- Obtain knowledge of Memory Hierarchy Design: Memory Technology – RAM, ROM; Memory Systems; Cache Memory Design; Virtual Memory
- Obtain knowledge of Input and Output Organization: External Devices; I/O Modules; I/O Communication Methods.

Topics Covered:
- Introduction
- Computer evolution and performance.
- A top-level view of computer function and interconnection
- Cache memory
- Internal memory
- External memory
- Input / Output
- Operating system support
- Computer arithmetic

Textbook(s)
Class Website: e-Class

Course Assignments & Grading:

- *Exams*: Midterm and Final exams
- *Course Projects*: Team based project
- *Assignments*: Writing and programming assignments
- *Grading*: Midterm exam: 30%, Final exam: 30%, Assignment: 20%, Project: 10%, Attendance: 10%

Grading Policies:
- Late Work: All assignments must be submitted on time. Late assignments will not be accepted.
- Make-Ups: There will be no make-ups given for any of the assignments in this course.

Course Policies:
- Attendance: Students are required to attend more than 90% of classes
- Academic Misconduct Policy: We really do not expect it, so please do not disappoint us! However, any form of cheating will be penalized and may result in failing the course. All students should read, understand, and abide by the DSU Academic regulations