Project on Dynamic Memory Allocation: Full report with MIPS code due on April 14, 2016 (Thursday)
Final Exam Date and Time: TBD.

Course Outline and Delivery Plan

1. Introduction to Computer Organization (1 week)
2. Computer Instructions (2 weeks)
3. Arithmetic and Logic Unit (1 week)
4. Performance Analysis (1 week)
5. Data Path and Control (2 weeks)
6. Performance Enhancement with Pipelining (2 weeks)
7. Memory Hierarchy and Virtual Memory Concepts (2 weeks)
8. Storage, Networks, and other Peripherals (1 week)
9. Engineering Design with Microcomputers (2 weeks)

Note: The topics 1-7 listed above correspond to the chapters of the recommended textbook. Topic 8 will be covered using specific microprocessor manuals and reference books. Class here implies a one-hour time slot.

Due to the teaching method adopted, discussions, reviews, tests, and projects will be integral parts of the topics 0-8 and hence all the class sessions.

Reading Requirements

The students are required to come prepared to every class with the material discussed in the previous class.

Course Learning Outcomes

Course Learning Outcomes (CLOs), that is, the areas for student learning in this course are:
[CLO-1] High-level View of Hardware and Software Components and their Organization.
[CLO-2] Computer Instruction and Low Level (assembly/machine) Programming
[CLO-3] Computer Arithmetic Processor
[CLO-4] Computer Performance Analysis
[CLO-5] Data and Control Path Design
[CLO-6] Pipeline Processor Design
[CLO-7] Memory Hierarchy and Virtual Memory Concepts
[CLO-8] Computer Peripherals
[CLO-9] Engineering Design with Microcomputers

Our EE Program Student Outcomes (SOs)

Upon completion of our BSEE program, the students will be able to:

[SO-1] Apply knowledge of mathematics, engineering and science.

[SO-2] Design and develop projects, and conduct experiments to verify and validate them, as well as analyze and interpret data.

[SO-3] Develop project-based learning skills through design and implementation of a system, component, or process that meets the needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

[SO-4] Function on multidisciplinary teams.

[SO-5] Identify, formulate, and solve engineering problems.

[SO-6] Have an understanding of professional and ethical responsibility.
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[SO-7] Communicate effectively.

[SO-8] Achieve broad education necessary to understand the impact of electrical engineering solutions in a global and societal context.

[SO-9] Understand learning processes, concepts of learning to learn, and engage in lifelong learning.

[SO-10] Achieve knowledge of contemporary issues.

[SO-11] Use techniques, skills, and computer-based tools for conducting experiments and carrying out designs.

**ABET Outcomes**

3a- ability to apply knowledge of mathematics, science, and engineering

3b- ability to design and conduct experiments, as well as to analyze and interpret data

3c- ability to design a system, component, or process to meet desired needs such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

3d- ability to function on multi-disciplinary teams

3e- ability to identify, formulate, and solve engineering problems

3f- understanding of professional and ethical responsibility

3g- ability to communicate effectively

3h- the broad education necessary to understand the impact of engineering solutions in a global and societal context

3i- recognition of the need for, and an ability to engage in life-long learning

3j- knowledge of contemporary issues

3k- ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

**Relationship between Our BSEE Program Student Outcomes and Course Learning Outcomes**

The course learning outcomes map onto our program’s student outcomes and ABET outcomes as depicted in the table below:

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<th>CLO</th>
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