TO: The Faculty of the College of Engineering

FROM: School of Electrical and Computer Engineering of the College of Engineering

RE: ECE 56500 Changes in Prerequisites, Description, and Content

The faculty of the School of Electrical and Computer Engineering has approved the following changes in ECE 56500. This action is now submitted to the Engineering Faculty with a recommendation for approval.

From: **ECE 56500 – Computer Architecture**
Sem. 1. Class 3, cr. 3.
Prerequisite: Masters Student Standing or higher. Authorized equivalent courses or consent of instructor may be used in satisfying course pre- and co-requisites. Department approval required.

An introduction to the problems involved in designing and analyzing current machine architectures. Major topics include performance and cost analysis, pipeline processing, vector machines and numerical applications, hierarchical memory design, and multiprocessor architectures. A quantitative approach allowing a computer system designer to determine the extent to which a design meets design goals is emphasized.

To: **ECE 56500 – Computer Architecture**
Sem. 1. Class 3, cr. 3.
Prerequisite: ECE 43700 or graduate standing

Computer architecture is the science and art of selecting and interconnecting hardware components to creaste a computer that meets functional, performance and cost goals. This course qualitatively and quantitatively examines uniprocessor computer design trade-offs. We will learn, for example, how uniprocessors execute many instructions concurrently and why state-of-the-art memory systems are nearly as complex as processors. Examining tradeoffs requires that you already know how to correctly design a computer, as is taugh in the important prerequisite ECE 43700.

Reason: The course description and content have been changed to reflect the udpated content of the course.

ECE 56500 – Computer Architecture

Required Text: John L. Hennessy and David A. Patterson, *Computer Architecture: A Quentitative Approach*, Morgan Kaufmann Publishers, Fifth Edition, 2011.

Recommended References: Mark Hill, Norman Jouppi, and Gurindar Sohi, *Readings in Computer Architecture*, Morgan Kaufmann Publisher.

Weeks	Principle Topics
0.5	Introduction
1	Performance and cost
1	Pipelining-basic implementation and evaluation
4	Advanced pipelining-hardware and compiler techniques
1	Memory Hierarchy-basic cache design and evaluation
4	Advanced cache and compiler techniques, and virtual memory
1	Input/Output-devices and performance
2.5	Vector processing and multiprocessors
1	Exams

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