CSC/CPE 315 Computer Architecture

1. CSC/CPE 315 Computer Architecture

2. credit units 4  contact hours 6

3. Course Coordinator: John Seng


5. a. Course Description: In-depth study of the instruction set architecture and hardware design of a specific CPU. Introduction to pipelines, input/output and multi-processors. Computer abstractions and performance measurement. 3 lectures, 1 laboratory. Crosslisted as CPE/CSC 315.

b. Prerequisite: CSC/CPE 103, and CPE/EE 229 or CSC 225 or CPE/EE 233.

c. Required/Elective/Selective Elective for CPE, CSC, EE, SE

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6. a. Course Goals/Outcomes
The student will be able to:
- Computer organization, architecture, and design as applied to MIPS processors
- The principles of computer performance measurement
- Assembly programming

b. How Student Outcomes addressed
(“B” = Basic level, “I” = Intermediate level, “A” = Advanced level)

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7. Major Topics Covered: (number of lecture hours each)
- Computer Abstractions (2)
- Performance measurement (3)
- The MIPS instruction set (2)
- Computer arithmetic (1)
- Datapath and Control (4)
- Pipelining (3)
• Memory hierarchies and virtual memory (3)
• I/O Devices (3)
• Parallel Processors (3)
• Exceptions (3)
• Laboratory time (30)