

COE 308 – 03 Fall 2006
Course Learning Outcomes Evaluation Table

| Outcome | Outcome Min. Weight | Assessment Method | | | | | | | |
|----------------|---------------------|-----------------------|--|------------|------------|------------|--|--------------|-------------|
| | | Assignments & Quizzes | | Exam I | Exam II | Final Exam | | Projects | Total |
| O1 | 40% | 15% | | 15% | 15% | 20% | | | 65% |
| | Average | 59.2% | | 67.1% | 67.6% | 51.5% | | | 60.6% |
| | Evidence | Assignments 1-4, 7 | | Exam I | Exam II | Final Exam | | | |
| O2 | 20% | 5% | | | | | | 16% | 21% |
| | Average | 58.0% | | | | | | 89.5% | 82.0% |
| | Evidence | Assignments 5, 6 | | | | | | Project 2, 3 | |
| O3 | 5% | | | | | | | 8% | 8% |
| | Average | | | | | | | 77.5% | 77.5% |
| | Evidence | | | | | | | Project 1 | |
| O4 | 2% | | | | | | | 4% | 4% |
| | Average | | | | | | | 85.5% | 85.5% |
| | Evidence | | | | | | | | |
| O5 | 2% | | | | | | | 2% | 2% |
| | Average | | | | | | | 85.5% | 85.5% |
| | Evidence | | | | | | | | |
| Weight | | 20% | | 15% | 15% | 20% | | 30% | 100% |
| Average | | 58.9% | | 67.1% | 67.6% | 51.5% | | 85.5% | 68.0% |

COE 308 Computer Architecture Course Learning Outcomes Table

| Course Learning Outcomes | Outcome Indicators and Details | Assessment Methods and Metrics | Min. Weight | ABET 2000 Criteria |
|---|--|--|-------------|--------------------|
| <p>O1. Ability to apply knowledge of mathematics, probability, and statistics in computer analysis and design.</p> | <ul style="list-style-type: none"> • Integer representation, addition, and multiplication • Floating-point representation, rounding, normalization, addition, and multiplication. • Program and instruction execution times and stall cycles. • Speedup computation • Evaluation of the average performance of I-pipelining and memory system | <ul style="list-style-type: none"> • Assignments • Quizzes • Exams | 40% | A(H) |
| <p>O2. Ability to design the datapath and control of a processor.</p> | <ul style="list-style-type: none"> • Design generic datapath based on Instruction Set requirements. • Identify datapath components and clocking methodology. • Design a detailed single-cycle integer datapath, Muxes, and PC updating. • Identify control signals and design control logic • Design inter-stage buffers and clocking for multicycle datapath. • Design multi-cycle control states and logic. • Design pipelined datapath and control • Detect and eliminate structural hazards • Detect data hazards and implement forwarding • Handle control hazards and predict branches | <ul style="list-style-type: none"> • Assignments • Quizzes • Exams • Project | 20% | C (H) |

| | | | | |
|---|--|--|-----------|--------------|
| <p>O3. Ability to identify, formulate, and solve computer architecture problems.</p> | <ul style="list-style-type: none"> • Assess design methodologies in single-cycle, multi-cycle, and multiple-issue datapaths. • Assess tradeoffs in cache design, page size, bus width, degree of associativity, cache capacity, and main memory access time. • Assess tradeoffs in address translation, virtual page size, TLB size, sequential versus concurrent TLB and cache access. • Assess scalability issues in shared-memory and distributed-memory systems. | <ul style="list-style-type: none"> • Assignments • Quizzes • Exams | <p>5%</p> | <p>E (L)</p> |
| <p>O4. Ability to use simulator tools.</p> | <ul style="list-style-type: none"> • Ability to set up a simulator. • Set up simulation runs based on some design specifications. • Run simulations and collect results and statistics • Ability to analyze simulation results and modify design specifications to improve performance. | <ul style="list-style-type: none"> • Assignments • Mini-group Projects | <p>2%</p> | <p>K(L)</p> |
| <p>O5. Ability to engage in self-learning.</p> | <ul style="list-style-type: none"> • Demonstrates reading, writing, listening and speaking skills • Identifying, retrieving, and organizing information • Following a learning plan • Demonstrate critical thinking skills such as applying the facts, formulas, theories, etc. to everyday situations. | <ul style="list-style-type: none"> • Mini-group Projects • Assignments • Quizzes • Exams | <p>2%</p> | <p>I(L)</p> |

Instructor Comments and Feedback:

Outcome 1, which is the ability to apply knowledge of mathematics, probability and statistics in computer performance analysis, needs improvement.

Many students are not submitting their assignments, and do not take them seriously. They loose grades and perform less on exams.

Dr. Muhamed Mudawar, February 4, 2007