



CSC 270 Computer Systems: Architecture & Organization

(3 contact hours – 0 lab hours – 3 credits)

Syllabus¹

- **General Information**

Instructor	
Office	
Phone	
Class Time	
Class Location	
Office Hours	
Teaching Assistant	

- **Required Textbook**

Structured Computer Organization, Sixth Edition. A. Tanenbaum and T. Austin. Pearson, 2013. ISBN: 978-0-273-76924-8.

- **Supplementary Textbook**

Computer Organization and Embedded Systems, Sixth Edition. C. Hamacher, Z. Vranesic, S. Zaky and N. Manjikian. McGraw-Hill, 2012. ISBN: 978-007-108900-5.

- **Course Description**

Computer architecture and organization. Performance evaluation, instruction set architecture, datapaths, control unit, pipelining, memory hierarchy, storage and other I/O topics.

- **Course Prerequisites**

CSC 230 (Digital Systems)

- **Course Category**

Required

¹ This syllabus may change as needed. In such a case, students will be informed accordingly.

- **Course Outcomes:**

After successful completion of this course the student will be able to:

1. Compute the execution time, throughput, and speedup for improvements. [ABET a, j].
2. Describe and use a RISC-style instruction set architecture. [ABET a].
3. Describe and design the datapath and control logic of simple processors. [ABET c].
4. Describe the concept of pipelining. [ABET a]
5. Analyze the impact of caches and memory organization on performance. [ABET c, j].
6. Explain disk storage, buses and I/O management. [ABET a, j].

- **Tentative Schedule**

Topic	Week
Syllabus	1
Ch. 1: Introduction	1,2
Ch. 2: Computer Systems	3-5
Appendix B: Floating-Point Numbers	6
Ch. 3: The Digital Logic Level	6,7
Ch. 4: The Microarchitectural Level	8-11
Ch. 5: The Instruction Set	12-15

- **Grading Scheme**

Quizzes	20%
Midterm Exam	40%
Final Exam	40%