

CSCI 540: Computer Architecture – 01E

Fall 2015

Instructor Information

Instructor: Christopher Osterwise, Ph.D
Class Period: 7:20 PM – 10:00 PM, Jour 104
Office Hours: One hour after class
Office Phone: Not Available, use online contact via email
TAMUC Email: Chris.Osterwise@tamuc.edu

Textbook (Required):

Computer Systems Design and Architecture, 2nd edition
By Vincent P. Heuring and Harry F. Jordan,
Pearson Prentice Hall, ISBN: 0-13-048440-7

Course Information

This course discusses basic computer design and hardware, beginning with a review of digital logic design from Appendix A. Assembly language and machine language are covered in Chapters 1 and 2. A model machine, SRC, and formal language for machine description, RTN, will also be covered in Chapter 2. Chapter 3 covers two real machines, the CISC Motorola MC68000, and the RISC SPARC. Computer design at the gate level, including the control unit is covered in Chapter 4. The first test will cover these first four chapters.

Chapter 5 begins pipelining, superscalar machines, and several other aspects of modern computer architecture is discussed in. These are the extremely critical portions of the course and will be discussed in detail. Chapter 6 covers computer mathematics and will **not** be part of the course instruction, as the prerequisite course for this class CSCI 516 should already have covered the material. Reference and review the information in Chapter 6 and associated Appendices if necessary. Machine input/output, memory, and peripheral devices are the subjects of Chapters 7, 8, and 9, respectively. This constitutes the last third of the course and the subject of the last regular test. This course will conclude with a discussion of computer communications and networking, and the Internet, from Chapter 10, and review for the Final Exam.

There are ten chapters in the book. We will be covering either one chapter, or one-half of a chapter each lecture. Each week (with the exception of weeks with tests), one homework and one quiz will be assigned. The breakdown for grading is as follows:

Homework:	25
Quizzes:	50
Exams:	15
Final:	10

I may curve to improve the class average; I will *not* lower anyone's grade via a curve.

Prerequisite: CSCI 516

Course Goals:

1. Understand how we use digital logic elements to design hardware to meet the needs of high-level programs.
2. Learn how to improve the performance of a program including characteristics of the original code, the software translation of that program into the computer's language, and the hardware for executing the program.
3. Learn techniques used by hardware designers to improve performance in modern computer design.
4. Understand design trends of modern microprocessors.

Academic Integrity:

The university, college, and department policies against academic dishonesty will be strictly enforced. I have a NO TOLERANCE policy for cheating and if you are caught cheating you may fail this course. Any suspected acts of academic dishonesty will result in a grade of 0 for the assignment. Repeated will result in receiving zero points for the entire *course*.