St. Mary's College of Maryland

Department of Mathematics and Computer Science

COSC 230 – Computer Architecture

Fall 2014 Syllabus

Meeting Time: MW 2:40-4:30 pm

Room: Schaefer 165

Instructor: Abdel Salam Sayyad

Office: Schaefer 152

Office Hours: MTWR 12:30-1:50 pm

Email: asayyad@smcm.edu

Textbook: Bryant & O'Hallaron, Computer Systems: A Programmer's Perspective, Second Edition, Pearson Press.

Primary Website: https://blackboard.smcm.edu

Secondary Website: http://faculty.smcm.edu/asayyad/cosc230.htm

Catalog Description

This course studies the structure of computer hardware. Topics include: models of computer hardware; instruction set architectures; simple code generation from a high- level language; machine code; simple logic design; representations of numbers and other data types; computer arithmetic; data path organization; input-output devices; control techniques (FSM and microcode); pipelines; caches; buses; virtual memory; primary secondary and tertiary storage structures. Prerequisites: COSC 130 and MATH 200 or MATH 281.

Overview

This course will introduce you to the major elements of a modern computer. It will allow you to understand the trade-offs and compromises that are made when designing computers and their effects on performance. It will allow you to understand how your programs are actually executed by the computer. It will discuss likely advances in the design of computers and their effects. The course is not designed to make you a computer designer or builder, but rather an educated purchaser and programmer of computers.

Grade Distribution

Formative Assessment (pre-class, in-class, and post-class) – 20%

Homework – 10%

2 Midterm Exams (Wed 10/8/2014, and Wed 11/12/2014) – 20% each

Final Exam – 30%

Policies

Cell Phones: Please, turn off or turn to silent any cell phones prior to getting to class. If they go off in class they are distraction not only to myself, but to everyone else in the class as well. Habitual offenders will be excused from the class with a 0 for any assessments that day.

Computer Use: Computer use in this lab is for academic use only. If you bring a laptop with you to this class I expect you to be only using it for purposes related to this class. The same goes for the desktops in the lab.

Collaboration: Assignments, projects and other inside- and outside-of-class work should be done on an individual basis unless otherwise specified in the description of the assignment. Any violation of this will be considered a breach of academic honesty code of conduct, explained next.

Academic Honesty

Academic misconduct policies are covered in the Student Code and Student Rights and Responsibilities, Article III. Pay close attention to the definitions of academic misconduct noted in Section 1. This can be found in the Student Handbook.

Disability

If you have any kind of disability that requires any special accommodation in this class, please let me know privately through email or stopping by my office.

Tentative schedule

Please check the class website http://faculty.smcm.edu/asayyad/cosc230.htm for a detailed and up-to-date schedule.

Week	Topic(s)
1	Syllabus and introduction
2	A Tour of Computer Systems (Chapter 1)
3	Data Representation (Chapter 2)
4	Computer Arithmetic (Chapter 2)
5	Program Representation (Chapter 3) **Homework set 1 assigned**
6	**Homework set 1 due** **First Midterm Exam**
7	Program Representation (Chapter 3 cnt'd)
8-10	Processor Architecture (Chapter 4) **Homework set 2 assigned**
11	**Homework set 2 due** **Second Midterm Exam**
12-13	The Memory Hierarchy (Chapter 6)
14	Virtual Memory (Chapter 9) **Homework set 3 assigned**
15	**Homework set 3 due**
16	**Mon 12/15 Final Exam 7:00pm – 9:15pm**