CSCI 4720 Computer Architecture and Organization

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Textbook: *Computer Organization and Design: The Hardware/Software Interface* by D.A. Patterson and J.L. Hennessy, Revised Fourth Edition, 2012, Morgan Kaufmann/Elsevier Publishers Inc., San Francisco, California.

Course Description : This course will cover the fundamentals of Computer Architecture and Organization. The necessary topics in Logic Design will also be covered. The course will cover chapters 1–6 from the textbook supplemented with material from appendices A–E and additional material provided by the instructor. Select material from chapter 7 will also be covered if time permits. A topical list of the material is as follows:

- Introduction to Computer Architecture (Chapter 1)
- Performance Measurement and Evaluation (Chapter 1)
- Logic Design Basics (Appendix C)
- Instruction Set Architecture Design (Chapter 2)
- Assembly Language Programming (Appendix B)
- Computer Arithmetic (Chapter 3)
- CPU Datapath Design (Chapter 4)
- CPU Control Design (Appendix D)
- CPU Pipelining (Chapter 4)
- Memory Subsystem Design (Chapter 5)
- I/O Subsystem Design (Chapter 6)

Office Hours: 1.00pm – 2.00pm Tuesdays and Thursdays, else by appointment. Appointments may be made by telephone or e-mail. E-mail is the preferred means of communication.

Scheme of Evaluation
Test 1: 20% (date will be announced at least a week in advance)
Test 2: 25% (date will be announced at least a week in advance)
Homework Assignments: 20%
Comprehensive Final: 35% (Thursday, December 5, 2013, 12.00pm to 3.00pm)
The tests will be held during the class period on the specified day. The test date will be announced at least a week in advance.

Test/Exam Policy: The test dates will be announced at least a week in advance. The tests will be held during the class period on the scheduled date. Absences from the tests and the final exam will not be permitted under normal circumstances. Students will be given make-up tests or a make-up final exam only under special circumstances and for valid reasons that are clearly documentable and verifiable (such as medical reasons). In such special circumstances, the student will be required to show the proper documentation, such as a note from the attending physician, which may be verified for authenticity. Each student is expected to do his/her own work during the test/exam.

Homework Policy: Each student is expected to do his/her own work when doing the homework assignments. You may discuss the problem and solution strategies with your friends/classmates but the work you turn in has to be *yours* and should reflect *your effort* and *your understanding* of the material. The homework assignments will typically consist of problems/exercises to be solved (based on the material covered), short programming assignments, and, in some cases, review of papers from current literature. Team work is not allowed unless explicitly specified. Homework is due by the end of the class period on the specified day. Any homework received after that time will be considered late. Late homework will not be graded and will be treated as a failure to turn in the homework assignment. Late homework will be considered only under special circumstances and for valid reasons that are clearly documentable and verifiable (such as medical reasons). In such special circumstances, the student will be required to show the proper documentation, such as a note from the attending physician, which may be verified for authenticity. Homework will be collected in class only. Homework submitted in any other manner (leaving homework in instructor's mailbox, sliding homework under instructor's office door etc.) will not be graded. If you cannot come to class on the specified day, contact the instructor before the homework due date to discuss alternative arrangements.

Grading Policy: Your grade in the course will be determined solely on the basis of your performance. The final grades once assigned will not be changed except in the case of error. There will be no extra credit work assigned to make up for a low grade.

Course Withdrawal Policy: If a student initiates a withdrawal before the withdrawal deadline (Thursday, October 17, 2013), then his/her grade in the course will be a WP (withdraw with pass). After the withdrawal deadline the grade will be a WF (withdraw with fail). A WF will count as an F (fail) in the computation of your GPA whereas a WP will not be used in the computation of your GPA. A student may be withdrawn from this course (with a WP or WF depending on when the withdrawal occurs) by the instructor without notification to the student for *excessive absences*. For this course, *excessive absences* is defined as *failure to turn in three successive homework assignments* or *failure to appear for a test* without prior notice or valid reason.

Academic Honesty Policy: Academic dishonesty will be dealt with in the strictest possible terms in accordance with the policy of the University of Georgia and the Department of Computer Science. For this course, the **minimum** penalty for a first-time academic dishonesty offence is an **F** on the course with a notation on the student's transcript. Students are expected to familiarize themselves with the academic honesty policy of the Department of Computer Science (attached) and that of the University of Georgia detailed at the following web sites:
https://ovpi.uga.edu/academic-honesty/academic-honesty-policy
https://ovpi.uga.edu/sites/default/files/uga-academc-honesty-policy-may-07.pdf