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Text Books: Computer Architecture – A Quantitative Approach  
by: Hennessy and Patterson  
Morgan Kaufmann  
(3rd or 4th edition)

COURSE CONTENTS:  
- Register Transfers and Datapaths.  
- Sequencing and Control  
- Instruction Set Design  
- CPU Design  
- Pipelining  
- Memory Systems – Caching  
- Microprogramming  
- Selected topics such as multiprocessors, interconnection networks and clusters.

STUDENT LEARNING OUTCOMES: At the end of this course students will be able to describe how a computer (hardware) operates. In particular:  
- Structure and operations of a modern (hard-wired, pipelined) CPU.  
- Memory systems, and improving performance by caching techniques.  
- Issues in instruction set design.  
- Our project also provides hands-on experience with computer architecture and design (instruction set, hardware, and assembler software).
GRADING SCHEME (for undergraduate students):

Homeworks and/or quizzes: 20%
Tests: 60% (Test1 20%, Test2 20%, Test3 20%)
Project: 20%

GRADING SCHEME (for graduate students):

In addition to the above, graduate students taking this course should investigate a topic in Computer Architecture, present a summary of their investigation in class, and write a term paper. A list of topics and references will be provided in class. The weight for this work is 20%, bringing the total for graduate students to 120%, which will be prorated to 100% to determine the grade.

TEST DATES:

NOTES:

- Students must have satisfied all prerequisites for this course. If a student does not have the prerequisites, he/she will be automatically de-registered upon discovery of the deficiency.
- The grade you will receive in this course is a function of your numerical marks in the assignments, project, tests AND the overall performance of all students in the course. The marks will be “normalized” to assess a student’s performance. A rough guideline is as follows: 90% to 100%, A; 80% to 89%, B; 70% to 79% C; 60% to 69% D (for undergraduate students) or F (for graduate students); below 60%, F.
- Students should be present for all tests. No make-up tests will be given.
- I often use email to communicate with you. I will only use your UNCG email addresses. Please make sure to check your messages regularly. If you normally use a different email address, it is your responsibility to forward your UNCG messages to that address.
- You are encouraged to seek information in other books or on the web. BUT you must cite the source if you use any material from other books or the web (for example, in your homework). Otherwise it is considered cheating.
- You are all expected to attend other students presentations.
- A penalty of 10% (of the total assignment mark) per day will be levied for late assignments. Late submission of an assignment is accepted until it is discussed in class.
- Written assignments are due in class.
- Computers do break down. In fact they often break down at the worst time. It is your responsibility to be prepared for such accidents, and still meet the deadline for your assignments. Also note that the labs get very busy at the end of the semester.
- It is a good idea to retain a copy of your works until you receive your final grade for the course.
- Please back up all your computer work.
- Some topics from the text or references will be designated as “reading assignments”. You are responsible to read these topics on your own, and ask questions during my office hours if there are any parts that need clarification.
- For administrative reasons I may need to make copies of some of your works and exams. Please notify me if you wish no copy of your works and tests to be made.
- UNCG Academic Integrity Policy will be strictly enforced.