CS 2340-504 - Computer Architecture Fall 2020

1. INSTRUCTOR: Dr Kang Zhang, Room: ECSS 3.227, Phone: 972-883-6351, kang.zhang@utd.edu

2. CLASS TIME: 08:30 - 09:45 pm, Mondays and Wednesdays, Online

3. OFFICE TIME: 8:30-9:30 am, Thursdays, Online

4. SYLLABUS:

- 1 Numbering Systems, Signed and Unsigned Numbers (*Notes, Sec.3.1-3.2*)
- 2 Introduction to Computer Organization (*Notes, Chap.1*)
- 3 MIPS Assembly Language (Sec. 2. 1-2.9)
- 4 Roles of Compiler, Assembler and Linker (*Sec.2.10-2.15*)
- 5 Performance Calculation (*Sec. 4.1-4.3*)
- 6 Processor Datapath (*Chap.5*)
- 7 Pipelining (*Chap.6*)
- 8 Memory Hierarchy (*Chap.*7)

5. TEXT AND REFERENCE BOOKS:

Text:	David Patterson and John Hennessy, Computer Organization and Design - The
	Hardware/Software Interface, Morgan-Kaufmann, 4 th or 5th Edition, 2008/2016.

References: William J. Pervin, *A Programmer's Guide to Assembler*, McGraw-Hill Custom Publishing, 2005. William B. Jones, *Assembly Language for the IBM PC Family*, Scott/Jones, 2nd Edition, 1997.

6. ASSESSMENT:

Grades will be determined by five assignments, a number of pop quizzes, and a final exam, with the following weightings:

Assignments:	30%	
Pop Quizzes:	40%	Anytime during lectures
Final:	30%	8:30 pm, Monday, 23 November 2020 (Week 15)
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A student must perform satisfactorily in **all the assessment forms** in order to pass the course.

7. GENERAL RULES:

- Lectures will be conducted online via eLearning Blackboard Collaborate (BBC), live and recorded.
- Cheating will NOT be tolerated. Those who are caught on cheating will be subject to the university's discipline code.
- There will be NO make-up quizzes, assignments, or final exam. Exceptional cases, such as illness and accidents, will be handled on an individual basis (proof must be presented otherwise a score of zero will be given).
- Students will have one week, after the result of each assignment, to seek corrections on grading. After that week, no changes will be made to scores. Pop quizzes and final exam will be graded automatically or manually by the instructor, and assignments by the TA. Late assignment submissions will not be accepted.
- eLearning will be used for pop quizzes and final exam, and serves as the communication media between the instructor/TA and students, and for assignment submissions.
- Students should attend all the classes by the department policy. If you decide to stop attending class, be sure to drop the course since you will not be dropped automatically.

ABET Class Learning Outcomes

An ability to represent values in, convert among, and perform calculations in decimal, binary (including 2's Complement), and hexadecimal

Understand the basic model of a computer – including the datapath, control, memory, and I/O devices

Program efficiently in an assembly level instruction set, including appropriate use of addressing modes and data types

Understand how programs are translated to machine language and executed – including the role of the compiler, assembler, and linker

Demonstrate comprehension of a pipelined-datapath including pipeline hazards

Demonstrate comprehension of performance measures and their estimation

Understand the memory hierarchy including operation of caches