UTD

Course	CS/SE/TE 3340.002, Computer Architecture
Professor	Richard Goodrum
Term	Fall 2016
Meetings	MW 8:30-9:45 A.M., ECSS 2.306

Professor's Contact Information

Office Phone	972-830-8300
Other Phone	(972) 883-2185 (CS Department Phone Number)
Office Location	ECSS 4.604
Email Address	Richard.Goodrum@UTDallas.edu
Office Hours	Mondays 10:00-11:00 A.M. or by appointment
Teaching Assistant	Hao Xiong, hxx160130@utdallas.edu ECSS 2.103B1, F 12:00-2:00
Other Information	The best way to communicate outside of class is through office hours or UTD email. Use email to set up appointments outside the office hours.

General Course Information

Pre-requisites, Co-requisites, & other restrictions	Pre-requisites: CS/SE/TE 1337 or equivalent, and CS/SE/TE 2305 or equivalent.
Course Description	This course introduces the concepts of computer architecture by going through multiple levels of abstraction, the representation of data (e.g. numbers) and instructions in memory. It focuses on the instruction-set architecture (ISA) of the MIPS machine, including MIPS assembly language, translation between MIPS and C, and between MIPS and machine code. General topics include processor performance calculation, processor datapath, pipelining, and memory hierarchy.
Learning Outcomes	After successful completion of this course, the student should: 1. Be able to write a functional, stand-alone medium size assembly language program. 2. Have an ability to represent numbers in and convert between decimal, binary, and hexadecimal and perform calculations using 2's complement arithmetic. 3. Understand the basic model of a computer including the datapath, control, memory, and I/O components. 4. Be able to program efficiently in an assembly level instruction set, including the use of addressing modes and data types. 5. Understand the role of compilers, assemblers, and linkers and how programs are translated into machine language and executed. 6. Be able to demonstrate comprehension of a pipelined architectures including datapaths and hazards. 7. Be able to demonstrate comprehension of computer performance measures and their estimation. 8. Understand the memory hierarchy including caches and virtual memory.
Required Texts & Materials	"Computer Organization and Design - The Hardware/Software Interface – 5th Edition", Patterson and Hennessey, Morgan-Kaufmann, 2013. ISBN-13: 978-0124077263. Note: insure that you get the correct

	edition and processor (MIPS).

Assignments & Academic Calendar

Week	Class	Dates	Reading Assignment	Homework	Program	Quiz or Exam
1	1, 2	Aug 22, 24	Chapter 1			
2	3, 4	Aug 29, 31	Chapter 2	1		
3	Holiday, 5	Sep 5, 7	Chapter 2		1	Quiz 1
4	6, 7	Sep 12, 14	Appendix A	2		
5	8, 9	Sep 19, 21	Appendix A		2	
6	10, 11	Sep 26, 28	Chapter 3	3		Quiz 2
7	12, 13	Oct 3, 5	Appendix B		3	
8	14, 15	Oct 10, 12	Appendix B	4		
9	16, 17	Oct 17, 19	Chapter 4		4	Quiz 3
10	18, 19	Oct 24, 26	Chapter 4	5		
11	20, 21	Oct 31, Nov 2	Chapter 4		5	
14	22, 23	Nov 7, 9	Chapter 5	6		Quiz 4
13	24, 25	Nov 14, 16	Chapter 5			
	Fall Break	Nov 21, 23				
14	26, 27	Nov 28, 30	Chapter 6	7		
15	28, 29	Dec 5, 7	Chapter 6		Project	
16	30	TBD				Final

Important Dates and Times	First day of class: Monday, 22 Aug, 2016 Final Exam: 12 Dec 2016 8:00-10:45 A.M.

Course Policies

Grading Criteria	Final Exam: 20%, Homework: 10%, Participation: 10%, Programs: 20%, Project: 10%, Quizzes: 30%
Quizzes	Quizzes may be given on any day during their block.
Make-up Quiz or Exam	Make-ups will be offered only if the student has a valid medical reason and produces a doctor's letter (in English) for the specific date. Blanket letters will not be accepted.
Extra Credit	No extra credit work will be assigned.
Late Work	Programs and homework submitted after the due date will be penalized at the rate of 10% for every day by which it is late. Late submissions will not be accepted after four days.
Class Attendance	Voluntary. However, regular attendance is recommended (see participation). By departmental policy, three absences in a row will result in a full letter grade reduction in the final grade. Four absenses in a row will result in failing the class. A student absent five or more classes will not be eligible for an incomplete grade. In such instances the student is advised to drop the course.
Participation	Participation is an in-class activity.
Classroom Citizenship	The instructor encourages students to take active part in class discussions. No question is too simple/stupid to be asked. So, do not hesitate.
Instructor Expectations	Students will: a. Be on time to lectures. b. Be attentive to lectures. c. Be respectful of other's need to avoid distractions. d. Perform their own work unless directed to participate in a group activity. e. Avoid the use of any premade works of answers (the use of which constitutes cheating). f. All student work will be typewritten.
UT Dallas Syllabus Policies and Procedures	*The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.* *Please go to http://go.utdallas.edu/syllabus-policies for these policies.*

These descriptions and timelines are subject to change at the discretion of the Professor.