Course Syllabus

Course Information
Course Number/Section	CS/SE 2340.503.20F
Course Title	Computer Architecture
Term	Fall 2020
Class Day and Time	Monday and Wednesday; 7:00 pm – 8:15 pm

Professor Contact Information
Professor	Muhammad Ikram; Ph.D., P.E.
Email Address	mzi@utdallas.edu
Online Office Hours	Virtual – Before/after the class or by appointment
TA	TBD

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Course Modality and Expectations

Instructional Mode	**Remote/Virtual** - Synchronous online learning at the day and time of the class. The instructor delivers the instruction from home or the office. Students complete the course at a distance. The course will have an asynchronous online learning access for students who cannot come or choose not to return to campus. Please click on this link for details: https://www.utdallas.edu/fall-2020/fall-2020-registration-information/
Course Platform	The course will be delivered via Blackboard Collaborate, which is available on eLearning.
Expectations	If you are not taking the course in asynchronous mode you are expected to attend the live sessions as scheduled and participate in discussions and other activities during a live session. If you have notified the instructor and are in asynchronous mode you are expected to study in the same pace as students who are in the synchronous mode, and to perform all quizzes or exercises assigned during a live session within 24 hours after the end of the session. Note that the due date for all assignments will be the same for all students regardless of learning modality. Participation in course discussion board on eLearning is also expected regardless of learning modality.
Asynchronous Learning Guidelines	Please review information available at this link for asynchronous learning: https://www.utdallas.edu/fall-2020/asynchronous-access-for-fall-2020/

COVID-19 Guidelines and Resources

The information contained in the following link lists the University's COVID-19 resources for students and instructors of record.

Please see http://go.utdallas.edu/syllabus-policies.

Class Participation

Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Note: if the instructor records any part of the course, then the instructor will need to use the following syllabus statement:

The instructor may record meetings of this course. Any recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Materials

The Instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

(CE 1337 or CS 1337 with a C or better or equivalent) and (CE 2305 or CS 2305 with a C or better). Credit cannot be received for both courses, (CS 2340 or SE 2340) and (CE 4304 or EE 4304).

Course Description

This course introduces the concepts of computer architecture by going through multiple levels of abstraction, and the numbering systems and their basic computations. It focuses on the instruction-set architecture of the MIPS machine, including MIPS assembly programming, translation between MIPS and C, and between MIPS and machine code. General topics include performance calculation, processor datapath, pipelining, and memory hierarchy. Credit cannot be received for both courses, (CS 2340 or SE 2340) and (CE 4304 or EE 4304). Prerequisites: (CE 1337 or CS 1337) with a grade of C or better or equivalent and (CE 2305 or CS 2305) with a grade of C or better. (Same as SE 2340) (3-0) S

Student Learning Objectives/Outcomes

After successful completion of this course, students will:
1. be able to write a fully 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, and
8. understand the memory hierarchy including caches and virtual memory.

Required Textbooks and Materials

David A. Patterson and John L. Hennessy, *Computer Organization and Design: The Hardware / Software Interface,* Fifth Edition (Morgan Kaufmann, 2014); ISBN 978-0-12- 407726-3.

Textbooks and some other bookstore materials can be ordered online or purchased at the UT Dallas Bookstore.

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the Getting Started with eLearning webpage.

Course Access and Navigation

This course can be accessed using your UT Dallas NetID account on the [eLearning](#) website.

Please see the course access and navigation section of the [Getting Started with eLearning](#) webpage for more information.

To become familiar with the eLearning tool, please see the [Student eLearning Tutorials](#) webpage.

UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The [eLearning Support Center](#) includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication

This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the [Student eLearning Tutorials](#) webpage for video demonstrations on eLearning tools.

Student emails and discussion board messages will be answered within 3 working days under normal circumstances.

Distance Learning Student Resources

Online students have access to resources including the McDermott Library, Academic Advising, The Office of Student AccessAbility, and many others. Please see the [eLearning Current Students](#) webpage for more information.

Server Unavailability or Other Technical Difficulties

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online [eLearning Help Desk](#). The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Proctored Final Exam Procedures

If your course has a proctored exam requirement, please see the [UTD Testing Center](#) webpage and [Distance Learning Proctored Exams](#) webpage to make arrangements.

Grading Policy

- Class Assignments : 25% (Quizzes, Homework, Projects)
- Semester Exams: 75% (Exam 1: 25%, Exam 2: 25%, Exam 3: 25%)

There will be three exams given during the semester. No makeup exams will be allowed. Homework and projects will be collected at the beginning of the class period when it is due. Late homework and projects will not be accepted.

Course Policies

Make-up Exams: No makeup exams will be given.
Late Work: Will not be accepted.
Classroom Citizenship: Professional at all times. No cell phone ringing, no ear buds etc.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please go to Academic Support Resources webpage for these policies.

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 UT Dallas Syllabus Policies webpage for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.