



F A S T School of Computing

EE-2003 – Computer Organization and Assembly Language

FALL 2023

Instructor Name: Sana Fatima

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Office Location/Number: Exam Hall

Office Hours: Mon/Tue/Thurs: 9:00-10:00

TA Name (if any): TBD

Email address: -

Course Information

Program: BS

Credit Hours: 3

Type: Core

Pre-requisites (if any): DLD

Class Meeting Time:

Class Venue:

Course Description/Objectives/Goals:

Course Learning Outcomes (CLOs)	BT Level	PLO Mapping
1. Demonstrate the basic concepts of computer organization including CPU, memories, and input/output and explain their purposes and interactions.	2	1
2. Describe the working of important x86 assembly primitives, including arithmetic, branching, bit manipulation, addressing modes and interrupt handling.	2	1
3. Apply the knowledge of Intel x86 architecture to develop	3	3

moderately complex and well-modularized assembly programs.		
4. Analyse the performance enhancement of a processor via cache and pipelining features.	4	2

Course Textbook

- Assembly Language Programming Lecture Notes by Bilal Hashmi.
- Assembly Language for x86 Processors Seventh Edition Kip R. Irvine
- Computer Organization and Architecture Designing for Performance Tenth Edition by William Stallings
- David A. Patterson, John L. Hennessy, Computer Organization and Design: The hardware/software interface, 4th Edition

Tentative Lecture Plan

Week	Topics to be covered
1	Introduction to Assembly Language
2	Addressing Modes
3	Branching
4	Bit Manipulations
5	Subroutines
Midterm 1	
6	Display Memory
7	String Instructions
8	Software Interrupts
9	Real Time Interrupts and Hardware Interfacing (Keyboard, Timer)
10	Multitasking (Optional)
Midterm 2	
11-14	Computer Architecture, Pipelining, Cache, Performance

(Tentative) Grading Criteria

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|------------------------|----|
| 1. Quizzes | 10 |
| 2. Midterms | 30 |
| 3. Final | 45 |
| 4. Assignments/Project | 15 |

Grading Scheme: Absolute

Course Policies

1. Quizzes may be un-announced.
2. No makeup for missed quiz or assignment.
3. 80% attendance
4. 50% passing marks

Academic Integrity

- Plagiarism and Cheating against academic integrity. Both parties involved in such cases will face strict penalty (negative marking, F grade, DC)
- CODE/ ASSIGNMENT SHARING is strictly prohibited.
- Keep in mind that by sharing your code/assignment you are not helping anyone rather hindering the learning process or the other person.
- No excuse will be entertained if your work is stolen or lost. To avoid such incidents
 - Keep back up of your code on safe online storage, such as Google Drive, Drop box or One drive.
 - Do not leave your work on university lab computer, transfer your work to online storage and delete from the university lab computer (empty recycle bin as well)

Course Policies

1. Announcements related to different aspects of this course (e.g. lectures, quizzes, exams, etc.) will be posted on google classroom. Students are expected to view the announcements section google classroom regularly.
2. All students are expected to attend all lectures from beginning to end. Partial or full absence from a lecture without a valid reason may hamper chances for securing good grades. University's attendance requirements must be met in order to appear in the final exam.
3. Quizzes may be announced or unannounced. A quiz will usually be about 5 – 15 minutes long and it may be given anytime during the lecture. Students missing a quiz will NOT be given a make-up quiz.
4. Students can contest their grades on quizzes and assignments ONLY within a week of the release of grades. Exams will be available for review according to university policies.
5. Students are expected to demonstrate the highest degree of moral and ethical conduct. Any student caught cheating, copying, plagiarizing, or using any other unfair means will be strictly dealt-with in accordance with university policies.