Tentative Course Plan and Syllabus
CSI 3640: Computer Organization

Instructor: Dr. Shital Joshi
Class Schedule: Tuesday, Thursday (08:00 AM to 9:47 AM)
Class Venue: Engineering Center 279
Email: ShitalJoshi@oakland.edu
Office: 130DH
Office Hours: Tuesday, Thursday (4:00 PM to 5:00 PM)

Credit: 4.00

Course Description:

The objective of the course is to teach students about the organization of a simple stored-program computer: CPU, buses and memory. It covers machine level and assembly level representation of data, instruction sets. Course includes assembly language, addressing modes, RISC and CISC architectures, assemblers, loaders, linkers arithmetic and logic unit, hardware functional units, input/output organization, memory organization, cache memory, virtual memory, control unit, pipelining, parallel computer organization.

Prerequisite: EGR 240

Course Objective:

After successful completion of the course, the students will be able to:

- Demonstrate programming proficiency using various addressing modes and data transfer instruction of the target computers. [CSE: (a), (b), (c)]
- Program using the capabilities of the stack, program counter and status register and show how these are used to execute a machine code program. [CSE: (b), (c)]
- Understand various conventional computational organizations and their strengths and weaknesses. [CSE: (i)]
- Describe how a CPU performs instructions during fetch-decode-execute cycle and how memory supports its actions. [CSE: (i)]
- Design of applications involving controllers and data paths. [CSE: (b), (c), (j)]
- Understand I/O interface, memory interfaces. [CSE: (b), (c), (j)]
- Understand interrupts and how can they be handled. [CSE: (b), (c), (j)]
- Analyze and evaluate computer performance. [CSE: (a), (b), (c)]

Text Book:

Carl Hamacher, Zvonko Vranesic, Safwat Zaky, Naraig Manjikian "*Computer Organization and Embedded Systems*", 6th edition, Tata McGraw Hills, 2002.

Reference Book:

David A. Patterson and John L. Hennessy, "Computer Organization and Design", 4th Edition, 2012.

Home works:

There will be around 5 -7 home works assigned throughout the semester.

Course Project:

Project has to be done individually. Project topic will be assigned on 1st February 2018. Due date will be 10th April, 2018 (11.59 PM EST). A report (**along with codes**) must be submitted through moodle. Each of the student has to present (in the form of ppt) the presentation either in the class or to me by 17th April 2018 (5:00 PM EST). Failure to present will deduct 50% marks from the total project grade. All the group member must be present during presentation.

Course Grade Criteria:

Home works	30% (300 points)
Project	20% (200 points)
Midterm Exam	20% (200 points)
Final Exam	30% (300 points)
Total	**100% (1000 points)**

Points Earned	Grade
975 – 1000	4.0
950 – 975	3.9
925-949	3.8
900-924	3.7
875-899	3.6
850-874	3.5
825-849	3.4
800-824	3.3
775-799	3.2
750-774	3.1
725-749	3.0
700-724	2.9
675-699	2.8
650-674	2.7
625-649	2.6
600-624	2.5
500-599	2.0-2.4
Less than 500	0.0

Course and Class regulations:

If you are having trouble understanding a concept, please contact me inside the class or in my office during office hours. Please feel free to make suggestions, complaints, etc., at any time including making comments anonymously.

I encourage, and reward, individual efforts to build a community of active learners. Efforts to participate in class will be awarded **bonus points or extra credits** in the class.

- Deadlines are final and must be met. It is your responsibility to allocate time accordingly. All assignments must be turned in before 23:59 (EST) on due dates listed. Absolutely NO excuses will be accepted like computer crashes. Ensure that you have enough backups to allow for the worst-case scenarios, such as loss of your homework or project.
- Exams: No make-up exams will be given unless (1) I am notified 2 weeks prior to the official exam's administration that you will miss the exam, and (2) an acceptable University-approved excuse is provided promptly. Exams will be closed books and notes with no crib sheet. Calculators that can store texts and diagrams will not be allowed.
- Mid Semester Evaluations: A mid semester evaluation will be conducted for all students registered in this course. For those students who are not achieving satisfactory progress (2.0) in this course at that point, an unsatisfactory grade (U) will be entered on SAIL.
- Students with disabilities who may require reasonable accommodations should contact Oakland University's Disability Support Services office for assistance. DSS office is located at 121 NFH, and their contact information is as follows. Phone: (248) 370-3266; TTY: (248) 370-3268; Fax: (248) 370-4989; E-mail: dss@oakland.edu.

Academic Conduct Policy**:** Students are expected to comply with the Academic Conduct Policy of the Oakland University. Suspected breaches of academic honesty will be taken before the Academic Conduct Committee. Academic misconduct includes—but not limited to—cheating in quizzes and exams, unauthorized collaborations in assignments, and plagiarizing the work of others. Students found guilty of academic misconduct in this course will receive a grade 0.0 for the course in addition to any penalties imposed by the conduct committee. Please refer to the undergraduate catalog as well as on-line Academic Conduct Regulations from http://www.oakland.edu/deanofstudents for details. Violations of classroom policy will be reported to the Dean of Students.

A course website is located at https://moodle.oakland.edu/moodle. This website will include notes and schedules (including exam dates) for our course. Lecture notes, home assignments will be available for download from this site.

Attendance**:** Attendance is very important for this class. Late arrival and side talking are strongly discouraged. Students are responsible for knowing all the verbal (announcement) and written information provided by the instructor during class, including those are posted on the course web page.

Home work/Report Submissions rules and best practices :

1) All home assignments/reports will be submitted **ONLY** through Moodle.

2) When naming your home assignments you **MUST** use the naming convention below:
a. All files should be collected under one folder and zipped, before submitting on Moodle.
b. The folder should be named as: Report/HW_**-Student_Name_XX. **(where ** means homework number and XX means last two digits of your Grizzly id.)**

Example: **HW01-S.Mike_52**

Failure to submit in this order will automatically results in 10 points deduction.

3) You are encouraged to review the assignments when assigned (even if you don't have time to work on them right then). This way you can plan out your week and get your questions answered early.

Class behavior contract:

I. Please adhere to professional behavior in class. Refrain from side conversations, surfing the internet on personal devices, answering phones/ texting, etc.

II. All digital devices such as: Personal laptops, Cell phones, tablets, mp3 players… etc need to be put out of sight and must be set to silent, no head phones are allowed.

III. Student can ask questions during any time of the lecture. I prefer students to ask questions, immediately as it arises and not wait till the end of the class. If you feel not satisfied with the answer, you can come and discuss with me after class or at any other time.

When and Where

Please visit http://www.oakland.edu/important-dates for many important dates of the semester.

Advice for performing well in this class

- Attend the class, bringing the required textbook to work on the exercises.
- Keep up with the weekly assignments, since many of the concepts build upon each other.
- Review the assignments when assigned (even if you don't have time to work on them right then). This way you can plan out your week and get your questions answered early. Don't wait until the last minute to work on an assignment at home.
- Read ahead in the book. Many of the questions you encounter in the homework and exams can be found in the reading.
- If you are working on your homework at the university and forget your flash drive, you can save your files to the following OU website: http://files.oakland.edu. You just need to use the same login that you do for Moodle.
- Check Moodle website of this session at https://moodle.oakland.edu/moodle often for updates. This website will contain notes, assignments, supplementary materials, assignment due dates, exam dates, etc.
- Class announcements and reminders through Moodle will go to your OU email. If you don't check OU email very often, forward it to your primary email account.
- Last but not least, if you have trouble understanding a concept, please contact me right away. Best way to catch me is by email.

Tentative Course Schedule:

Class	Date	Topics	Chapter
1	Jan 4	Introduction	Chapter 1
2	Jan 9	Instruction Set Architecture	Chapter 2
3	Jan 11	Instruction Set Architecture	Chapter 2 (HW 01)
4	Jan 16	Instruction Set Architecture	Chapter 2
5	Jan 18	Instruction Set Architecture	Chapter 2 (Lab)
6	Jan 23	Software	Chapter 4
7	Jan 25	Software	Chapter 4 (Lab)
8	Jan 30	Basic Processing Unit	Chapter 5
9	Feb 1	Basic Processing Unit	Chapter 5 (HW 02)
10	Feb 6	Basic Processing Unit	Chapter 5
11	Feb 8	Memory System	Chapter 8 (HW 03)
12	Feb 13	Memory System	Chapter 8
13	Feb 15	Memory System	Chapter 8 (HW 04)
	Feb 17	Winter recess	
	Feb 26	Winter recess	
14	Feb 27	Project Discussion	
15	Mar 1	Revision	
16	Mar 6	1st Mid Term	
17	Mar 8	Memory System	Chapter 8 (Lab)
18	Mar 13	Input/Output Organization	Chapter 3,7
19	Mar 15	Input/Output Organization	Chapter 3,7 (Lab)
20	Mar 20	Input/Output Organization	Chapter 3,7
21	Mar 22	Input/Output Organization	Chapter 3,7 (HW 05)
22	Mar 27	Input/Output Organization	Chapter 3,7
23	Mar 29	Input/Output Organization	Chapter 3,7 (HW 06)
24	Apr 3	Pipelining	Chapter 6
25	Apr 5	Pipelining	Chapter 6 (HW 07)
26	Apr 10	Pipelining	Chapter 6
27	Apr 12	Revision	
Apr 24		8:00 – 11:00 AM (Engineering Center 279)	

Note:

- This is just a tentative course schedule. It may evolve throughout the semester.