California State University, San Bernardino
CSE 2130 – 04 – Machine Organization
SYLLABUS

Spring 2022

***** Important***: This class is designated as in-person. Per University's directive, it will start as online until February 18, 2022. The lecture will be conducted asynchronously during this period. Please do not show up in person during this period. In-person lectures for this class will resume on Tuesday February 22, unless a new directive specifies otherwise. I will keep you informed. References in the syllabus that imply in-person presence are not applicable for the online period; they are applicable when we resume in-person instruction.**

Instructor: Professor Taline Georgiou

Class meeting time and place: **Lecture**: 2:30 PM to 3:45 PM Tu-Th, CGI 110

Catalog Description: Number systems and data encoding, von Neumann computer architecture, instruction set architecture, addressing modes, arrays and records, subroutines and interrupts, I/O, assembly programming.

Prerequisites: Semester Prerequisite: CSE 2010. Quarter Prerequisite: CSE 202

Classroom safety (May be updated if and when new University policies are put in place.)

- Students must wear appropriate face coverings while indoors and those without will be asked to return upon obtaining one. Limited exceptions can be obtained by contacting the Office of Services for Students with Disabilities.
- Students unwilling to wear a mask will be asked to leave immediately and appropriate security protocol (including class cancellation) may occur at the discretion of the faculty, who may then assign additional work due to non-compliance.
- Students who are positive or are exhibiting COVID-like symptoms, must leave the space immediately and faculty will follow up regarding make-up work and accommodations at a later time.

Student Learning Outcomes: This course introduces the student to the principles of computer organization, computer architecture, and assembly language. Specifically the objectives of the course are:

- To know the basic components that make up a computer: CPU, memory, storage, input, output. What they consist of, how they operate, and how they work together.
- To know the organization of the components into a computer system.
- To know how data (integers, characters, arrays, records, linked lists) are represented in a computer.
- To know how operations are implemented, i.e. using the datapath and control.
- To know machine language and assembly language (LC-3).
- To know compilation of high level programs into assembly language, and assembly language programs into machine language.

- To know the internals of parameter passing and recursion, e.g. activation records and the run-time stack.

Slack: Students are encouraged to ask and respond to any questions on Slack by posting on the "General"channel. More information on Slack will be provided on Canvas and/or via email.

Email: **tgeorgio@csusb.edu**. The best way to reach me is via private message on Slack. If email is used, in the subject you must indicate **Course number and section**.

Office: JB 538, **Phone:** 909-537-5411

Office Hours: 12:30 PM - 2:00 PM M-W and by appointment. All office hours during the online period will be conducted via Slack, email, or Zoom. All Zoom meetings must be initiated by the student via Slack (private message) or email in advance.

Learning Management System: Canvas. For technical support, please contact the Technology Support Center, tickets@csusb.edu or 909-537-7677.

Textbook (Required): *Introduction to Computing Systems: From bits & gates to C/C++ & beyond*, by Yale N. Patt, Sanjay J. Patel, Publisher: McGraw-Hill Science/Engineering/Math; 3rd edition, 2020, ISBN 9781260150537

Midterm Exam: **Tuesday, March 15, 2:30 PM – 3:45 PM**. No make ups.

Final Exam: **Thursday, May 19, 2:30 PM – 4:30 PM**. No make ups.

Grading: Assignments 25%, Midterm 35%, Final 40%

Grade Scale:

A	93 – 100	C	73 – 76
A-	90 – 93	C-	70 – 73
B+	86 – 90	D+	66 – 70
B	83 – 86	D	63 – 66
B-	80 – 83	D-	60 – 63
C+	76 – 80	F	00 – 60

Attendance: It is expected that the student will attend all lectures. The student is responsible for all material covered in class, and also for all announcements made therein. Attending and participating during lectures is important to understand the material.

Assignments: Homework/Quizzes (to be specified shortly, pending grader availability)

Grading questions: All questions regarding a grade must be made within 7 calendar days from the day the grades have been posted on Canvas. After that, the grade will be fixed and will not change.

Inclusion, diversity, and equity This class is committed to uphold the values of inclusion, diversity, and equity in all their forms. The students should be able to freely participate in the class without obstacles or fear, regardless of their background. The class is to be a welcoming environment. In particular, bullying will not be tolerated. If any problem arises, students should report it to the instructor as soon as possible.

Academic honesty: According to the CSUSB Catalog of Programs, plagiarism and cheating may result in penalties up to and including expulsion. Students are allowed and encouraged to discuss the material related to assignments, however writing down the solutions must be done individually. Exchanging

solutions or parts of solutions is not allowed. When it comes to the attention of a student that possibly dishonest behavior took place, he or she should report it to the instructor. At the very least cheating on an assignment will result in a grade of zero.

Disabilities: If you are in need of an accommodation for a disability in order to participate in this class, please contact the instructor and the Services to Students with Disabilities at UH-183, (909) 537-5238. It is the student's responsibility to seek academic accommodations for a verified disability in a timely manner.

University policies: The student is referred to "Academic Regulations and Procedures" in the CSUSB Bulletin of Courses for the university's policies on course withdrawal, cheating, and plagiarism.

Copyright of materials: All materials posted on Canvas and elsewhere are copyright of the Instructor, the Publisher, and/or others. They are strictly for the student's educational use in this class, and it is prohibited to be posted on the internet, to be shared with others, and/or used in any other way.

Outline of Course: (Approximate and subject to change)

Week	Topic
1	Chap. 2: *Data types and operations*
2, 3	Chap. 3: *Digital logic Structures*
4, 5	Chap. 4: *The Von Neumann Model,*
6, 7	Chap. 5: *LC-3; Programming*
8	**Midterm Exam: Tuesday, March 15, 2:30 PM – 3:45 PM**. No make ups.
8, 9	Chap. 7: *Assembly Language*
10	**Spring Break**
11, 12	Chap. 8: *Data Structures*
13, 14	Chap. 9: *I/O*
15	Chap. 16,17: *Pointers and Arrays, Recursion*
16	Review
	Final Exam: Thursday, May 19, 2:30 PM – 4:30 PM. No make ups.