COSC 2425-101H3, Computer Organization
Fall 2025, 8/18/2025 – 12/4/2025
2:00 – 3:20pm Tuesday and Thursday
STEAM classroom: S1.146

Instructor Information:

Name: Faith (Fay) Alexander
Email: fbryan@com.edu
Office phone: 409-933-8334 – If no answer, leave a message for a callback.
Office Location: STEAM 225.55

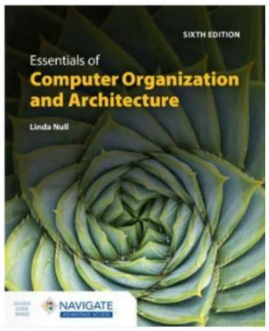
Office hours in the classroom, STEAM 225.55 (office)

Monday	9:00 – 9:30 am, 12:30 – 2:00 pm
Tuesday	9:00 – 9:30 am, 11:00 am – 12:30 pm
Wednesday	9:00 – 9:30 am, 12:30 – 1:30 pm
Thursday	9:00 – 9:30 am, 11:00 am – 12:30 pm

Other days and times are by appointment with the instructor.

Required Textbook:
The Essentials of Computer Organization and Architecture
Sixth Edition
Author: Linda Null
Jones and Bartlett Learning
25 Mall Road
Burlington MA 01803
www.jblearning.com
ISBN 9781284259438 (paperback)

LCCN 2022062125



Course Description

The organization of computer systems is introduced using assembly language. Topics include basic concepts of computer architecture and organization, memory hierarchy, data types, computer arithmetic, control structures, interrupt handling, instruction sets, performance metrics, and the mechanics of testing and debugging computer systems. Embedded systems and device interfacing are introduced. This course is included in the Associate of Science Degree in Computer Science. Prerequisite: COSC 1336 — Programming Fundamentals I.

Course Requirements

The textbook is required during the first week of class. There is no substitute for the textbook. PowerPoint presentations, available to the student, do not contain the detail from the textbook.

Assignments must be worked exactly according to the directions and problem statements provided by the instructor. Assignment solutions must use the material in the textbook and on D2L, not material from unauthorized sources on the Internet, which can be incorrect and misunderstood.

There is no software required to be installed on your home computer for this course. The assembly language simulators are provided on a file posted to D2L and can be downloaded to your computer. No installation is required. Instructions will be provided in class.

Computer and Internet access: Regarding problems with your own computer and with Internet access outside of campus computer labs, COM is not responsible for outages, and due dates will not be extended. Please see the instructor immediately for any issues regarding this policy.

Grading Formula:

COURSE ITEM	% of Total Grade
Tests	70%
Assignments	30%
Total	100%

Grading Scale:

Letter Grade	Percent
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	Below 60%

Late Work, Make-Up and Extra-Credit Policy: Homework must be completed on time. Due dates will not be extended, and late work will not be accepted. There are no test re-takes. See the instructor if you have a documented emergency. There is no extra credit in this course.

Attendance Policy:

All students are expected to attend all sessions in the classroom. There are no recordings of lectures and labs. If you cannot attend a class, you are still responsible for that content. Please contact a classmate to find out what you missed, and be sure to meet all deadlines, as they will not be extended.

All assignments and specific due dates are in D2L, COM's Learning Management System. Each student is expected to access D2L on a regular basis to be cognizant of all assignments. All tests are also in D2L and must be taken in the classroom. No remote submissions for tests are allowed.

Computer and Internet access: Regarding problems with your own computer and with Internet access, COM is not responsible for outages, and due dates will not be extended.

Cell phone usage is not allowed during class.

Communicating with your instructor: ALL electronic communication with the instructor must be through your COM email. Due to FERPA restrictions, faculty cannot share any information about performance in the class through other electronic means.

You may communicate with the instructor through email, phone and in person during office hours.

Updates to this Syllabus:
The instructor reserves the right to update this syllabus. All substantive changes will be communicated to students as soon as possible, in the classroom and through BrightSpace D2L announcements.

Student Learner Outcome	Maps to Core Objective	Assessed via this assignment
1. Explain contemporary computer system organization.	Written Communications	Chapter 1, von Neuman Architecture, Covered on Test 1
2. Describe data representation in digital computers.	Empirical and Quantitative Skills	Assignment, Chapter 2, Number representations
3. Explain the concepts of memory hierarchy, interrupt processing, and input/output mechanisms.	Written Communications	Chapter 7, I/O Architectures, Exercises from Chapter 7
4. Measure the performance of a computer system.	Empirical and quantitative skills	Assignment on Speedup, regarding different computer components
5. Design and develop assembly language applications	Critical Thinking Skills	Assignment, MARIE program, assembly language MARS Programs Stack Program
6. Explain the interfaces between software and hardware components	Written Communications	Chapter 8, Section 8.2, Operating Systems
7. Explain the design of instruction set architectures.	Written Communications	Chapter 4, Real-World Examples of Computer Architectures, covered on Test # 2.
8. Develop a single-cycle processor	Critical Thinking Skills	Chapter 4. Explain the steps in the fetch-decode-execute cycle. Include what is happening in the registers.

9. Explain the concept of virtual memory and how it is realized in hardware and software	Critical Thinking Skills	Chapter 6 (Memory), Section 6.5 (Virtual Memory)
10. Explain the concepts of operating system virtualization	Written Communications	Chapter 8 (System Software), Section 8.3.1 (Virtual Machines), Final Exam, Chapters 1-8

Academic Dishonesty

Any incident of academic policy will be dealt with in accordance with college policy and the Student Handbook. Academic dishonesty – such as cheating on exams is an extremely serious offense and will result in a grade of zero on that exam and the student will be referred to the Office of Student Conduct for the appropriate disciplinary action.

Use of Artificial Intelligence tools to write your programs or compute answers for your assignments is strictly prohibited. It is vitally important for the student to utilize critical thinking skills when writing and debugging assembly language programs, as well as completing the other assignments.

Student Concerns:

If you have any questions or concerns about any aspect of this course, please contact me using the contact information previously provided. If, after discussing your concern with me, you continue to have questions, please contact Mr. Leslie Richardson, Math and Computer Science Department Chair, at 409-933-8329, email lrichardson@com.edu.

Course Outline

An outline of course assignments is shown below.

Wk	Date	Topic
1	8/19 – 8/21	Chapter 1: Introduction Artificial Intelligence (AI)
2	8/26 – 8/28	Chapter 2: Data Representation in Computer Systems
3	9/2 – 9/4	Chapter 2 (continued)
4	9/9 – 9/11	Chapter 3: Boolean algebra and Digital Logic
5	9/16 – 9/18	Chapter 3 (continued) KMAPS
6	9/23 – 9/25	**Test Review, TEST 1 ON CHAPTERS 1-3, Thursday, Classroom only**
7	9/30 – 10/2	Chapter 4: MARIE: An Introduction to a Simple Computer
8	10/7 – 10/9	MARIE cont'd
9	10/14 – 10/16	MARS assembly language
10	10/21 – 10/23	Assembly Language, MARIE and MARS, ISAs Artificial Intelligence
11	10/28 – 10/30	**Test Review and TEST 2 ON CHAPTER 4 on Thursday, Classroom only**
12	11/4 – 11/6	Chapter 5 ISAs
13	11/11 – 11/13	Chapter 6: Memory

Wk	Date	Topic
14	11/18 – 11/20	Chapter 7: Input/Output Systems
15	11/25	Chapters 8: Alternative Architectures, Embedded Systems
16	12/2	**TEST 3 on Chapters 5 – 8, Tuesday, Classroom only**

Institutional Policies and Guidelines

Grade Appeal Process: Concerns about the accuracy of grades should first be discussed with the instructor. A request for a change of grade is a formal request and must be made within six months of the grade assignment. Directions for filing an appeal can be found in the student handbook https://www.com.edu/student-services/student-handbook.html**.** *An appeal will not be considered because of general dissatisfaction with a grade, penalty, or outcome of a course. Disagreement with the instructor's professional judgment of the quality of the student's work and performance is also not an admissible basis for a grade appeal.*

Academic Success & Support Services: College of the Mainland is committed to providing students the necessary support and tools for success in their college careers. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

ADA Statement: Any student with a documented disability needing academic accommodations is requested to contact:
Kimberly Lachney, Student Accessibility Services Coordinator
Phone: 409-933-8919
Email: AccessibilityServices@com.edu
Location: COM Doyle Family Administration Building, Student Success Center

Textbook Purchasing Statement: A student attending College of the Mainland is not under any obligation to purchase a textbook from the college-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Withdrawal Policy: Students may withdraw from this course for any reason prior to the last eligible day for a "W" grade. Before withdrawing students should speak with the instructor and consult an advisor. Students are permitted to withdraw only six times during their college career by state law. The last date to withdraw from the 1st 8-week session is October 1. The last date to withdraw from the 16-week session is November 14. The last date to withdraw for the 2nd 8-week session is November 25.

FN Grading: The FN grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The FN grade may be issued for cases in which the student ceases or fails to attend class, submit assignments, or participate in required capacities, and for which the student has failed to withdraw. The issuing of the FN grade is at the discretion of the instructor. The last date of attendance should be documented for submission of an FN grade.

Early Alert Program: The Student Success Center at College of the Mainland has implemented an Early Alert Program because student success and retention are very important to us. I have been asked to refer students to the program throughout the semester if they are having difficulty completing assignments or have poor attendance. If you are referred to the Early Alert Program you will be contacted by someone in the Student Success Center who will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

Resources to Help with Stress:
If you are experiencing stress or anxiety about your daily living needs including food, housing or just feel you could benefit from free resources to help you through a difficult time, please click here https://www.com.edu/community-resource-center/. College of the Mainland has partnered with free community resources to help you stay on track with your schoolwork, by addressing life issues that get in the way of doing your best in school. All services are private and confidential. You may also contact the Dean of Students office at deanofstudents@com.edu or communityresources@com.edu.

Nondiscrimination Statement:
The College District prohibits discrimination, including harassment, against any individual on the basis of race, color, religion, national origin, age, veteran status, disability, sex, sexual orientation, gender (including gender identity and gender expression), or any other basis prohibited by law. Retaliation against anyone involved in the complaint process is a violation of College District policy.