

MIDWESTERN STATE UNIVERSITY
DEPARTMENT OF COMPUTER SCIENCE
CMPS 2084: Introduction to Computer Architecture

Spring semester 2021

Instructor: Dr. Nelson L. Passos
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Office Hours: TR 12:00 - 2:00
TR 3:30 - 4:30
M 12:00 - 3:00
W 12:00 - 1:00
Class Hours: TR 2:00 - BO 127 W 1:00/3:00 pm - BO 109 (lab)

Course Description:

Study of the functions and logical relationships of digital computer components, including the central processing unit, different levels of memory, control signals, bus systems, data channels, input/output devices, instruction set architecture and Assembly programming language. Also discussed are memory addressing techniques, data representation and more advanced topics as pipelined, superscalar, and RISC processors.

Prerequisites:

Minimum grade of C in CMPS 1044

Text book online:

1. Sign in or create an account at learn.zybooks.com (or get it from bookstore)
2. Enter zyBook code **MWSUCMPS2084PassosSpring2021**
3. Subscribe. A subscription will last until May 22, 2021.

Grading:

Tests and Final Exam	20 % (each, include lecture, online and lab material)
Assignments (online textbook)	5 %
Homework Assignments	5 %
Lab Assignments	10 %
Mini Projects (3)	5 % (each)
Class Participation	5 %

Final grading letter:

90 to 100 pts = A, 80 to 89.99 pts = B, 70 to 79.99 pts = C, 60 to 69.99 pts = D, other = F

Additional and important information:

All students should refer to the current MSU Students Handbook and Activities Calendar for university policies related to class attendance, academic dishonesty, students responsibilities, rights and activities.

COVID: During class, students must comply with MSU's requirement for wearing a face covering as mandated in the document https://msutexas.edu/return-to-campus/_assets/files/msu-texas-facial-covering-requirement.pdf

Disability needs: Inform the instructor if you are a student with a disability and need accommodations for this class.

Cell phones, etc.: Use of any electronic device is not allowed in the classroom. Exceptions must be approved by the instructor.

Student drops: If you wish to drop this course you must first contact your instructor. All students-initiated drops must be processed by **April 23, 2021**.

Attendance: **Students are expected to attend all meetings of the classes in which they are enrolled.** In case of virtual classes, attendance will be verified by online participation. Attendance is rewarded by the participation points in the grading criteria.

Campus Carry: Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at <https://mwsu.edu/campus-carry/rules-policies>.

Assignments: Assignments will be made as scheduled and are expected to be completed by the specified due date. Grades will be given to the assignments handed in on time. Late assignments will be accepted until one class past the due date (except for online assignments), however will have their maximum grade reduced by twenty points. Any assignment turned in after that period or not done will be graded zero points. Students in this course must demonstrate their competency in fundamentals math skills through assignments and tests.

Assistance: Please contact your instructor for extra help during this course. This includes class material clarification, expected absences from class due to any personal problem, etc.

Academic Honesty: The Department of Computer Science had adopted the following policy related to cheating (academic misconduct). The policy will be applied to all instances of cheating on assignments and exams as determined by the instructor of the course.

- 1st instance of cheating in a course: The student will be assigned a non-replaceable grade of zero for the assignment, project or exam. In addition, the student will receive a one-letter grade reduction in course.
- 2nd instance of cheating in a course: The student will receive a grade of F in course & immediately be removed from course.

All instances of cheating will be reported to the Department Chair and, in the case of graduate students, to the Department Graduate Coordinator.

Testing Process

The Department of Computer Science has adopted the following policy related to testing:

- All bags, purses, electronics (turned off), books, etc. will be placed in the front of the room during exams, or in an area designated by the instructor.
- Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.
- No student is allowed to leave the room during an exam and return

Midterm Progress Report: In order to help students keep track of their progress toward course objectives, the instructor for this class will provide a Midterm Progress Report through each student's WebWorld account. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand. Students earning below a C at the midway point should schedule a meeting with their instructor.

RECORDING OF CLASS LECTURES: Permission must be requested in writing & obtained from the instructor before recording of class lectures. If permission is granted, the recording may only be used by the student making the recording. Recordings may NOT be posted on any internet source without written permission of the instructor. Failure to adhere to the policy may result in removal from the course with a grade of F or other appropriate punishment.

Grading system will be discussed in class.

Tentative agenda:

Jan 12-	Introduction – binary numbers
Jan 13-	LAB 1 – C++ programming
Jan 14-	Number systems - conversion
Jan 19-	Negative numbers
Jan 20-	LAB 2 – Number systems
Jan 21-	Fractions – hexadecimal system
Jan 26-	Introduction to computer architecture, cache, pipeline
Jan 27-	LAB 3 - Negative numbers
Jan 28-	Computer evolution
Feb 2-	Computer performance
Feb 3-	LAB 4 – CPU registers, debug
Feb 4-	Instruction set overview
	Textbook Assignment # 1 due; Homework Assignment # 1
Feb 9-	Operands and instructions
Feb 10-	LAB 5 – Cancelled - Graded as lab 7
Feb 11-	Logical operations and decisions
Feb 16-	SNOW BREAK
Feb 17-	LAB 6 - Cancelled - Graded as lab 7
Feb 18-	SNOW BREAK
Feb 23-	Logical operations and decisions
	Textbook Assignment # 2 due;
Feb 24-	LAB 7 - Assembly programming
Feb 25	Addressing modes
	Textbook Assignment # 3 due; Homework Assignment # 2
Mar 2-	Procedures - Interrupts
Mar 3-	LAB 7a - review
Mar 4-	Test # 1
	Homework Assignment # 3
Mar 9-	Introduction to memory/storage
Mar 10-	LAB 8 - Conditional jumps
Mar 11-	Disk technology
	Textbook Assignment # 4 due; Homework Assignment # 4
Mar 16-	Cache memory address mapping
Mar 17-	LAB 9 - Procedures and stacks
Mar 18-	Write policies – associative mapping
Mar 23-	Replacement algorithms
Mar 24-	LAB 9b - Boolean operations
Mar 25-	Error correction introduction
Mar 30-	Error correction hamming code
Mar 31-	Easter Break
Apr 1-	Easter Break
Apr 6-	Memory management
Apr 7-	LAB 10 - Bit manipulation
Apr 8-	RAID
	Textbook Assignment # 5 due
Apr 13-	Paging
Apr 14-	LAB 11 - Arrays and strings
Apr 15-	Test # 2
Apr 20-	Paging
Apr 21-	LAB 12 - Programming practice
Apr 22-	Segmentation
Apr 29-	Finals (Thursday, 1:00 pm)