Assembly Language and Computer Organization
CSCE 2610, Section 002
Fall 2025

Class Timings: Tuesday and Thursday 1:00 PM – 2:20 PM, Discovery Park E266

Instructor: Robin Pottathuparambil, Email: rpottath@unt.edu, Office Hours: F263, Monday and Wednesday, 1:00 PM – 3:00 PM or by appointment.

Teaching Assistants:

- Yanbo Dai, Email: YanboDai@my.unt.edu, Student Hours: F270, Tuesday 11:30 AM – 12:30 PM, and Thursday 3:30 PM – 4:30 PM (Recitations, Programming Assignment and Class Activity Grading)
- Apurba Pokharel, Email: ApurbaPokharel@my.unt.edu, Student Hours: F270, Monday 1:30 PM – 2:30 PM (Recitation)
- Teena Poorna Sudheera Maganti, PoornaSudheeraMaganti@my.unt.edu, Student Hours: E247, Tuesday and Thursday, 11:00 AM – 1:00 PM. (Homework and Quiz Grading)

Course Webpage: All the course related material will be posted on the course webpage which is available through Canvas (https://unt.instructure.com/)

Course Outcomes:

- Discuss the different classes, components, and interface between software and hardware of a computing system.
- Apply metrics to evaluate performance of a computing system using execution time and power.
- Examine instruction set choices and write assembly language program for simple C program and program with functions.
- Perform integer and floating-point calculations using computer arithmetic algorithms.
- Describe the organization of a simple processor and show the execution of simple instructions.

Program Outcome Mapping:

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Text: *Computer Organization and Design: The Hardware Software Interface: ARM Edition* by Patterson and Hennessy, Morgan Kaufmann, ISBN-13: 978-0128017333

Catalog Description: Prerequisite: CSCE 2100, EENG 2710 or 2720. Principles of computer systems organization, instruction sets, computer arithmetic, data and control paths, memory hierarchies, and assembly language.

Topics:
- Computer Abstractions and Technology
- Instructions: Language of the Computer

- Arithmetic for Computers
- The Processor.

Grading:

Class Activity	5%
Homework	12%
Quizzes	12%
Programming Assignments	20%
Midterm Exam (10/07/2025)	21%
Comprehensive Final Exam (12/11/2025)	30%

Class Activity: There will be several class activities during the class session that will reinforce the concepts that we learned in the class. These class activities will be scheduled during the class timing.

Homework: Homework will be in the form of problem sets with a due date one week after it is assigned. Homework will be assigned on Tuesdays as per the schedule. **No late homework will be accepted.** Homework must be done individually (you will learn the most from this). Any evidence of group participation or direct copying from sources like previous year's solutions, textbook, solutions, Wikipedia, websites, and other sources will be interpreted as academic dishonesty. Using AI (Artificial Intelligence) assisted websites to generate or auto generate solutions will also be interpreted as academic dishonesty. There will be five to six homework assignments.

Quizzes: There will be five to six pop quizzes given throughout the semester. The pop quizzes can be given any time during the class. These will be to reward students who consistently attend the class but will be more than just attendance points.

Programming Assignments: The programming assignments are an integral part of the course and are intended to provide experience in the application of the concepts discussed in the lecture. Programming assignments will be assigned on Thursdays as per the schedule and with a due date of **two weeks** after it is assigned. There will be four to five programming assignments assigned. Programming assignments must be done individually and can be done on your own PC or using the server. Any evidence of group participation will be interpreted as academic dishonesty. Using AI (Artificial Intelligence) assisted websites to generate or auto generate solutions will also be interpreted as academic dishonesty.

Recitations: There will be recitations throughout the week. The TA will be available at that time to help you with the programming assignments. There will be demonstrations on how to use the DS-5 simulator during the recitation.

Exams: There will be a midterm exam and a final exam. The exams are closed books and closed internet. Mobiles phones are not permitted and browsing the internet is not allowed. Exams will include material from the modules, the readings, homework, and programming assignments and should be taken individually and not as a team. Final exam will be comprehensive.

- **Midterm Exam:** Tuesday, October 7th, 2025, 1:00 PM – 2:20 PM, E266
- **Comprehensive Final Exam:** Thursday, December 11th, 2025, 10:30 AM – 12:30 PM, E266.

Missing Classes/Assignments/Exams: Attendance at all exams is mandatory. Throughout the semester, a student may miss classes, assignments, quizzes, or exams due to many reasons. Most of the reasons will not be accepted as an "excused" absence. Assignments, quizzes, or exams can be made-up only under extraordinary circumstances and only when notification is given to me before the quiz or exam is administered. Students are expected to attend class meetings regularly and to abide by the attendance policy established for the course. It is important that you communicate with the professor and the instructional team prior to being absent, so you, the professor, and the instructional team can discuss and

mitigate the impact of the absence on your attainment of course learning goals. Please inform the professor and instructional team if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community. A no-show for any assessments, quiz or exam without prior notification and a verifiable excuse (appropriate official documentation) result in a grade of zero for that quiz or exam.

Safety Procedures and Guidelines: While working in recitation sessions, students are required to follow proper safety procedures and guidelines in all activities requiring lifting, climbing, walking on slippery surfaces, using equipment and tools, handling chemical solutions and hot and cold products. Students should be aware that UNT is not liable for injuries incurred while students are participating in class activities. All students are encouraged to secure adequate insurance coverage in the event of accidental injury. Students who do not have insurance coverage should consider obtaining Student Health Insurance. Brochures for student insurance are available in the UNT Student Health and Wellness Center. Students who are injured during class activities may seek medical attention at the Student Health and Wellness Center at rates that are reduced compared to other medical facilities. If students have an insurance plan other than Student Health Insurance at UNT, they should be sure that the plan covers treatment at this facility. If students choose not to go to the UNT Student Health and Wellness Center, they may be transported to an emergency room at a local hospital. Students are responsible for expenses incurred there.

Disputing Grades: If you have a dispute with how an assignment, quiz, or exam is graded, you should get the solution to the assignment, quiz, or exam off the course web site and examine it. If you really believe that your answer is correct (matches the answer given in the solution), contact the grader and discuss it with him. The grader will listen to your concern, and act on it, at their discretion. In any case, they will regrade the assignment and will communicate with you. The solutions for programming assignments will not be posted, so contact the grader to discuss the grade if you have met all the requirements of the programming assignment and you have lost points. Note that instructor or grader addition errors should follow the above procedure. Assignments, quizzes, exam, and homework grades are disputable for **one week** from the day the grades were assigned on Canvas.

Class Policies: Please note that portable phones, pagers, and late arrivals are disruptive to the instructor and to your peers. The use of cell phones, beepers, or communication devices is disruptive and is therefore absolutely prohibited during class and exams. Turn off your cell phone while in class and while taking exams. If I catch you using these devices in the class or during the exams, the penalty can range from a formal warning to an 'F' for the course and you will be asked to leave the class. Except in emergencies, students using such devices must leave the classroom for the remainder of the class period. I know that some of you may wish to take notes directly on your computer and I have no problem with that. If, however, you choose to access your email, search the web, play games, or instant messenger your friends during class, you will have 10% deducted from your final grade for each transgression. A non-programmable calculator is required for all class meetings and exams. If I am late arriving to class, it will be because of circumstances beyond my control. You are expected to remain for 20 minutes past the scheduled class start time while I attempt to communicate my situation and relay instructions.

Syllabus Revisions: I reserve the right to modify the syllabus, course policies, the course calendar, assignment and its grade points, and due dates. Notice of such changes will be by email or announcement in class.

Course Policies: You are expected to spend at least 10 hours per week on this course. Keep all your graded assignments, quizzes, and tests for study and review. You should track your own progress on Canvas and be aware of current grades throughout the term. If you would like to look at the graded assignments, meet me during my office hours or set up an appointment. Final grading will be done as follows. **A**: >= 90%, **B**: >= 80% and < 90%, **C**: >= 70% and < 80%, **D**: >= 60% and < 70% and **F**: < 60%. Grades will be curved if necessary. Grades cannot be changed after they have been electronically entered

into the university's system except for instructor error. Any extenuating circumstances that may adversely affect your grade must be brought to my attention before the final course grades are recorded. To be considered, such circumstances must be unusual, unavoidable, and verifiable.

Disability Services/Special Needs: UNT complies with all federal and state laws and regulations regarding discrimination including the Americans with Disability Act of 1990 (ADA). If you have a disability and need reasonable accommodation for equal access to education or services, please contact the Office of Disability Accommodation. Please initiate this process and inform me during the first two weeks of class.

Academic Dishonesty: All the provisions of the University code of academic integrity apply to this course. In addition, it is my understanding and expectation that when you submit any test, exam, or assignment means that you neither gave nor received unauthorized aid. For homework and programming assignments, while discussion is allowed, direct copying is not, and students must turn in individual submissions. Using AI (Artificial Intelligence) assisted websites to generate or auto generate solutions will also be interpreted as academic dishonesty. All students are required to know, observe and help enforce the UNT Code of Student Academic Integrity. Academic dishonesty will result in disciplinary action according to UNT Policy 06.003. The penalty for a first offense can range from a formal warning to an 'F' for the course. Regardless of the penalty imposed, a record of the offense will be kept in the Office of the Dean of Students.

Student Perceptions of Teaching (SPOT): Student feedback is an important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The short SPOT survey will be made available **November 11th – December 4th** to provide you with an opportunity to evaluate how this course is taught.

ABET Survey: Towards the end of the course, the students will be asked to ABET exit survey which will help instructors to quantitively measure whether the students met the course outcomes stated in the course syllabus. This survey will be conducted during the last week of classes.

Tentative Course Schedule:

Week	Lecture	Assignments Due
08/18 – 08/22	Computer Abstractions and Technology	
08/25 – 08/29	Computer Abstractions and Technology	
09/01 – 09/05	Computer Abstractions and Technology	Homework 1
09/08 – 09/12	Instruction set	Programming Assignment 1
09/15 – 09/19	Instruction set	Homework 2
09/22 – 09/26	Instruction set	Programming Assignment 2
09/29 – 10/03	Instruction set/Review	Homework 3
10/06 – 10/10	Arithmetic for Computers	Midterm Exam
10/13 – 10/17	Arithmetic for Computers	
10/20 – 10/24	Arithmetic for Computers	Programming Assignment 3
10/27 – 10/31	Arithmetic for Computers	Homework 4
11/03 – 11/07	Processor design	Programming Assignment 4
11/10 – 11/14	Processor design	Homework 5
11/17 – 11/21	Processor design	Programming Assignment 5
11/24 – 11/28	Thanksgiving Break	No Classes
12/01 – 12/05	Processor design/Review	Homework 6
12/08 – 12/12	Comprehensive Final Exam	Final Exam