

Assembly Language and Computer Organization

CSCE 2610, Section 001

Summer 2015

Class Timings: Monday and Wednesday, 10:30 AM – 11:50 AM, NTDP B140

Instructor: Robin Pottathuparambil (Email: rpottath@unt.edu, Office: NTDP F263)

Graders: Dillon Stout (Email: DillonStout@my.unt.edu, Help Lab: Tuesday and Thursday 2:00 PM to 3:30 PM)

Course Webpage: All the course related material will be posted on the course webpage which is available through Blackboard (<https://learn.unt.edu>).

Course Outcomes:

- Understand the interface between software and hardware
- Be able to measure the performance of a computer system
- Understand the choice of instruction sets
- Understand and be able to write Assembly Language programs
- Understand computer arithmetic algorithms and ALU design including floating point
- Understand and apply techniques in digital circuit design to the design of a single cycle simple processor
- Understand memory hierarchy and cache memories.

Text: Computer Organization & Design, 5th edition by Patterson and Hennessy, Morgan Kaufmann, ISBN 9780124077263

Office Hours: Monday, Tuesday, and Wednesday 5:00 PM – 6:00 PM and by appointment.

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
- Instruction set
- Arithmetic for Computers
- Processor design
- Memory Hierarchy
- Storage and I/O

Grading:

Homework	10%
Programming assignments	20%
Quizzes	10%
Midterm Exam (07/08/2015)	25%
Final Exam (08/14/2015)	35%

Homework: Homework is another example of learning by doing. Although not as exciting as a lab, homework is essential to learning the concepts in this course. Homework will be in the form of reading assignments and problem sets, with a due date 2-3 lectures after it is assigned. **No late homework will be accepted.** Homework must be done individually (you will learn the most from this). Any evidence of group participation will be interpreted as academic dishonesty. There will be six to seven homework assignments.

If you have a dispute with how an assignment is graded, you should follow this procedure:

Get the solution to the assignment off the class web site and examine it. You may have just got the problem wrong. 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 sign the homework verifying that they saw it again.

We record all "disputed" points separately. We contend that "disputed" points never add up to a change in your final grade, and we will examine this when final grades are assigned. Note that instructor addition errors should follow the above procedure, but will not be figured in the "disputed" points.

Programming Assignments: The programming assignments are an integral part of the course and are intended to provide experience in the application of the design techniques discussed in lecture. There will be four to five programming assignments assigned. Programming assignments can be done on your own PC. Programming assignments grades will be based on write-ups and a report is due.

Quizzes: There will be six to seven pop quizzes given throughout the semester. These will be to reward students who consistently show up to class, but will be more than just attendance points. Quizzes can be made-up only under extraordinary circumstances and only when notification is given to me before the exam is administered. A no-show for a quiz without prior notification and a verifiable excuse results in a grade of 0 for that quiz.

Exams: There will be one mid-semester exam and one final exam. Mobiles phones are not permitted. Exams will include material from the lecture, the readings, homework, and laboratories. Exam dates are:

- Mid-semester exam: Wednesday, July 8, 2015 10:30 AM – 11:45 AM , NTDP B140
- Final exam: Friday, August 14, 2015 10:30 AM – 12:30 PM, NTDP B140

Missed exams: Attendance at all exams is mandatory. Only legal or debilitating medical excuses will be accepted (read: prison time, major blood loss, etc.), provided that they are accompanied by the appropriate official documentation. Makeup exams are more difficult than the exams they replace. Failure to satisfy these criteria will result in a zero grade for the exam.

Missing Classes/Assignments: Throughout the semester, a student may miss classes or assignments or exams due to many reasons. Most of the reasons will not be accepted as an "excused" absence. Plus, you can always email your homework. For example: Throughout the semester, a student may miss classes or assignments or quizzes or exams due to many reasons. Most of the reasons **will not** be accepted as an "excused" absence.

Syllabus Revisions: This syllabus may be modified as the course progresses. Notice of such changes will be by email or announcement in class.

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. Turn off your cell phone while in class. If I catch you using

these devices, your final grade will be reduced by 10 points for each and every transgression 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. This penalty will be at the sole discretion of the instructor. 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 solitaire or other games, or instant messenger your friends during class, you will have 10 points deducted from your final grade for each and every transgression. This penalty will be at the sole discretion of the instructor. 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.

Course Policies: Keep all of your graded assignments, quizzes, and tests for study and review. You should track your own progress using Blackboard, and be aware of current grades throughout the term. Final grading will be done as follows. **A:** 90% - 100%, **B:** 80% - 89%, **C:** 70% - 79%, **D:** 60% - 69% 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. Assignment, quiz, and homework grades are disputable for 1 week from the day the grades were assigned on Blackboard.

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 a 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 your signature on any test or assignment means that you neither gave nor received unauthorized aid. For homework and labs, and projects, while discussion is allowed, direct copying is not and students must turn in individual submissions. Realize that mastery of the material in the homework and lab assignments will be essential for a good performance on the exams! The only exception is that lab partners work closely on the lab assignment and turn in one lab report. All students are required to know, observe and help enforce the UNT Code of Student Academic Integrity. Cheating will result in disciplinary action according to UNT Policy 18.1.16. 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.

Course Schedule:

Week	Lecture	Assignments
Week 1	Computer Abstractions and Technology	Homework 1
Week 2	Instruction set	Programming Assignment 1
Week 3	Instruction set	Homework 2
Week 4	Arithmetic for Computers	Homework 3
Week 5	Arithmetic for Computers	Programming Assignment 2
Week 6	Processor design	Homework 4
Week 7	Processor design	Programming Assignment 3
Week 8	Memory Hierarchy	Homework 5
Week 9	Memory Hierarchy	Programming Assignment 4
Week 10	Storage and I/O	Homework 6