

Syllabus: EE 3310 - Microprocessors

Spring 2015

Teaching Staff

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Catalog Data

EE 3310 MICROPROCESSORS (3-2) Principles of operation for microprocessors, including assembly language programming, internal architecture of processors, timing analysis, and interfacing techniques. Special emphasis will be placed on hardware-software interactions, design of memory systems for microprocessors and utilization of programmable peripheral devices. Prerequisite: Grade of C or better in EE 2341 and CSE 1311.

Grading Policy

Point Values for Activities		Determining Grade	
Exam 1	15%	90% -- 100%	A
Exam 2	20%	80% -- 89%	B
Homework	10%	70% -- 79%	C
Preview Quizzes	5%	60% -- 69%	D
Labs	30%	0% -- 59%	F
Final Exam/Project	20%		

Required Texts

Text: Programming 16-Bit Microcontrollers in C – Learning to fly the PIC 24, 2nd Edition Lucio Di Jasio, 2012, ISBN 978-85617-870-9, Newnes Publishing

Data Sheet: PIC24FJ64GA102 from Microchip. Each student must have a soft copy of the Data Sheet. This document may be downloaded from [Microchip](#).

Required Software

MPLAB X IDE (Integrated Development Environment), which may be downloaded [BY CLICKING HERE](#). You can also go to www.microchip.com and search for MPLab X.

XC16 Compiler, also available from the same location as MPLab X.

Exams

The two major examinations will be old-fashioned paper and pencil exercises. The exams are Open Book. No software copies may be used.

Final Exam/Project

There is no Final Exam this semester in EE 3310.

In its place is a final project that will be assigned several weeks before the end of the semester. The purpose of the project is to reinforce the topics focused on during the semester, and also to allow you to learn a new skill through reading relevant data sheets and incorporating the new information into your project.

The hardware platform (circuit board or breadboard) must contain the circuit you built, evidenced by your name written on it in indelible ink. Similarly, the code you develop must be your own or taken from materials provided in class.

Homework Submissions

Homework should be submitted at the beginning of class. Homework is late as soon as lecture starts. If the homework is a software assignment, it should be submitted electronically to both the instructor and the GTA.

NOTE: No Late Homework Assignments will be accepted.

Labs

Labs will start on Thursday, January 22. If a Lab Report is required, it will be due at the beginning of lab one week after the lab was to be performed. The first lab is a Policies/Procedures/Safety lecture, followed by the installation of MPLabX on your personal computer. Attendance is mandatory.

Each Lab Report must be submitted electronically (to the prof and to the GTA) and as a printed (hardcopy) document to the GTA. All graphics must be drawn using PowerPoint, Visio, or some other drawing program – no handwritten work may be submitted with the report.. Soft copies of the Lab Report, and the software code files, should be emailed before the beginning of the following lab with EE3310 Lab in the Subject field.

Lab Grades will be reduced by 10% **for each day or portion of a day the report OR required emails** are late. The lowest Lab grade will be dropped when calculating the final lab grade.

Office Hours

Office Hours will be from 9:30 am to 10:45 a.m. on Tuesdays and Thursdays. Other times may be scheduled by appointment.

ABET Participation

Criterion 3. Student Outcomes

The program must have documented student outcomes that prepare graduates to attain the program educational objectives. Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

EE 3310, by design, emphasizes criterion (c). In addition we will focus on criteria (h), and (j). These criteria are demonstrated through the use of a state of the art Microcontrollers and in our use of the Microcontrollers to interface with state of the art external interfaces.

Americans with Disabilities Act

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93-112 ³/₄ The Rehabilitation Act of 1973 as amended. With the passage of new federal legislation entitled Americans with Disabilities Act ³/₄ (ADA), pursuant to section 504 of The Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Academic Dishonesty

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

All students are expected to abide by the Statement on Ethics, Professionalism, and Conduct for Engineering Students at <http://www.uta.edu/engineering/downloads/research/ethics.pdf>.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents' Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22).

Campus scholastic dishonesty policies will be followed. In addition, if a student is caught cheating on a graded task, the assigned grade will be a 0. The grade cannot be dropped if grades are dropped for that category (e.g., homework or labs).