CPE 233: Computer Design and Assembly Language Programming

Cal Poly San Luis Obispo Winter 2019

Course Policies, Procedures, and Grading

Class time:	Section 11&12:	TR 8:10 – 11:00	Room 20-100
	Section 21&22	TR 12:10-3:00	Room 20-100
Final Exam:	Section 11&12:	Tuesday, March 19th 10:10-1pm	
	Section 21&22	Tuesday, March 19th, 1:10-4pm	
Instructor Info:	Bridget Benson	Office: Building 20A, Room 309	
	Phone: 756-5738	Email: bbenson@calpoly.edu	
Office Hours	Mondays 11:10-1pm in my office (20A-309)		
	Mondays & Wednesdays 3:10-4:30 in the lab (20-100)		

Course Catalog Description: Design and implementation of digital computer circuits via CAD tools for programmable logic devices (PLDs). Basic computer design with its datapath components and control unit. Introduction to assembly language programming of an off-the-shelf RISC-based microcontroller.

Course Prereq:	CPE/EE 133 or equivalent	
Textbook:	FreeRange Computer Design by B. Mealy (available on PolyLearn)	
Software:	Vivado 2018.2	(follow download instructions on Polylearn)
	RATSim v0.62	(download from Polylearn)
Hardware:	Digilent Basys3	(use in lab, check out from library, or buy your own)
	Peripheral Parts Kit	purchase from IEEE student branch room 20-115
Course Style:	This is a studio course - meaning that the lecture and lab are combined into one class setting. You will be assigned a different seat and different lab partner about every other week.	

Grading Policy:		
	RAT Assignments	16%
	SW Assignments	16%
	Peripheral Assignments	8%
	Midterm (2/14 - 80 min)	20%
	Final Project	10%
	Final Exam	30%

RAT Assignments, SW Assignments, Peripheral Assignments

The lab assignments (RAT, SW, and Peripheral) will be completed in pairs (you will be assigned a partner). For each assignment, you will be asked to upload a brief report as a pdf on Polylearn (guidelines described in the lab manual). Only one write up per pair is required. Late reports will receive half the grade they would have received had they been turned in on time. The last day to turn in any late reports is the last day of class (March 14th). **All assignment uploads are due on MONDAYS by 11:55pm.** Some assignments also require a demo which will be due the following day (Tuesdays) in class.

Midterm,Final

There will be one 80-minute midterm for this course and one 170 minute final. They will be closed book and closed notes. The RAT assembler manual and architecture diagram will be provided if needed. No make ups will be allowed unless approval is obtained prior to the scheduled test date or if a serious event should occur

Final Project

You will have the opportunity to test your designed processor and assembly code writing skills by making a cool digital device. You may choose your own final project team which can have 1-3 people total. More details provided on Polylearn

How to succeed in this course:

Come to class, take notes, and ask questions
Read the textbook (especially before looking online for help)
Draw complete hardware block diagrams (for RAT assignments) and flowcharts (for SW assignments **BEFORE** starting to code.
Setup Vivado and RatSim on your own computer and do all the coding yourself
Get comfortable using the Vivado simulator
Use the Piazza forum for asking and answering questions
Come to office hours
When you make a mistake, figure out why, and then do the problem again...and again...and again. Make up your own problems to solve again and again.

Miscellaneous Policies:

Please put all cell phones on silent in class.
Please no messy food inside the lab (chewy granola bars, closed water bottles, etc. are ok).
You are welcome to listen to music through headphones during lab if that helps you and your

lab partner get your work done.
If by chance you can't "find" something on PolyLearn and you know it should be there, this most likely means that I messed up and don't know about it. Please let me know.
Please never hesitate to email me directly or come talk to me about anything. Have fun!

University Policies

Academic Integrity:

Students are responsible for knowing the policy regarding academic honesty. Academic Honesty Policy

Students with Disabilities:

Persons who wish to request disability-related accommodations should contact the Disability Resource Center in Building 124, Room 119. Phone: (805) 756-1395 or (805) 756-6266 (TTY). Office hours are Monday-Friday from 8:00 AM – 4:30 PM. Some accommodations may take up to several weeks to arrange. DRC Web Site If you are a student with a disability, please consider discussing your needs and possible accommodations with me as soon as possible.)

Diversity:

Cal Poly is committed to recruiting and retaining a diverse and culturally competent campus community that engages in a curricular and co-curricular learning environment that incorporates the Learn By Doing philosophy.