General Information

Instructor

Dr. Harry H. Cheng
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WWW: http://iel.ucdavis.edu/course/MAE254/winter17
Office hours: 10:20am-11:00am TuTh, or by appointment

Lecture Hours

9:00-10:20am TuTh, Olson 267

Topics

Principle and design of engineering software
Very high-level shell programming
Advanced topics in C90 and C99 for engineering applications.
Object-oriented engineering software design in C++
Visualization for engineering applications
Interface between scripting languages and binary C/C++ libraries
Embedded computing and its engineering applications
Web-based network computing and its engineering applications
Event-driven programming and design for graphical user interface (GUI)
Advanced scientific numerical computing for engineering applications
Multi-thread real-time computing for control and sensor fusion
Mobile agent based computing and its applications
Robot Programming

Prerequisites

EME5 (C language) and E180 (numerical analysis) or equivalent

Computers

Laptop in Windows, Mac OS X (with Windows), and Raspberry Pi 3.

Textbooks

(1) Harry H. Cheng, *C for Engineers and Scientists: An Interpretive Approach*, McGraw-Hill, 2009, ISBN: 9780390210463. http://iel.ucdavis.edu/cfores/

Suplementary Materials

(1) *The Ch Language Environment User's Guide*.
(2) Instructor's lecture notes.
(3) Documentations in C-STEM Studio.

Course Handouts

The course handouts are distributed at lecture time.
Some of them are available on the Website of the
the home page for EME254 at
http://iel.ucdavis.edu/course/MAE254/winter17
For example, this handout is stored as `general.pdf` under *General Policy*.

Homework Homework is given out periodically and is due typically on Friday by 5pm in both a MAE homework box outside 2018 Bainer in hardcopy and Website eletronically. The computer programs for homework should also be submitted at Website for the course before the deadline. The homework will be assigned at lecture time. However, you can get a copy of the homework assignment from the home page for this class on the Website. Solutions to the written homework assignment will be available on the Website. No Late homework will be accepted, without exception.

Examinations *Middle/Final Examination:* this is an open book/open notes examination. The specific date of examination, near the end of the quarter, will be announced one week before the examination date. No early or late exam will be given. If you miss the exam for medical reasons (You **must** document this; no other excuses are acceptable), the other parts of the course will be counted proportionally more or you may be allowed or required to take a make-up exam (the choice is the instructor's).
Final Project: a comprehensive project with a technical report.

Grading System Written and computer homework 40%
Midterm/Final examination 30%
Final project 30%

Academic Integrity (1) All work submitted for credit must be your own. You may discuss your assignment with classmates and instructor, in the course to get ideas or a critique of your ideas, but the ideas and words you submitted must be your own. Unless **explicitly** stated otherwise in the homework assignment, collaboration is considered cheating and will be dealt with accordingly.
(2) For written homework, you must write up your own solutions and may neither read nor copy another student's solutions.
(3) **For computer programs, you must create and type in your own code and document it yourself**.
But, you are free to copy programs from toolbkit and modify them to solve the similar problems. Modifications made should be clearly documented.
You are free to seek help from instructor and fellow students while you are debugging a program once it is written.