

Senior Design Project Courses Planned for AY2011-12

The "*design elective with project*" requirement may be satisfied by taking a Design Project Course or a Senior Design Project. Each Design Project Course involves a team design project and a related written project report. We expect to offer four Design Project Courses next year:

EEC119AB: Integrated Circuit Design Project (Winter, Spring Quarters, 5 units)
Prerequisite: EEC116 or EEC118. Design course involving architecture, circuit design, physical design, and validation through extensive simulation of a digital or mixed-signal integrated circuit of substantial complexity under given design constraints.
For more information, please contact Professor Raj Amirtharajah (ramirtha@ucdavis.edu)

EEC136AB: Electronic Design Project (Fall, Winter Quarters, 5 units) Prerequisite: The new prerequisites will be ECS30, EEC110A, 150A and 180A. Optical, electronic and communication-engineering design of an electronic system operating under performance and economic constraints. Measurement techniques will be designed and implemented, and the system will be characterized.
For more information, please contact Professor Andre Knoesen (aknoesen@ucdavis.edu)

EEC181AB: Digital Systems Design Project (Winter, Spring Quarters, 4 units)
Prerequisite: EEC180B. Digital-system and computer-engineering design course involving HW-SW co-design, architecture design tradeoffs, implementation and evaluation of a FPGA-based processing system for acceleration of application-specific intensive computations.
For more information, please contact Professor Soheil Ghiasi (ghiasi@ucdavis.edu)

EEC193: "An FMCW RADAR for Range, Doppler, and SAR Measurements"
This course provides the students an opportunity to work on a hands-on project related to RF/microwave systems by implementing a Frequency Modulated Continuous Wave (FMCW) radar system that can perform range, Doppler, and Synthetic Aperture Radar (SAR) measurements. The project integrates RF/microwave engineering, analog circuit design, and digital signal processing. The participating teams are expected to build working FMCW radar systems and devise measurement plans to demonstrate the capabilities of the systems. Course prerequisites: EEC110A&B, EEC130A&B, EEC132AB (can be taken concurrently), EEC150A, EEC150B or EEC160.

EEC195AB: NATCAR Design Project (Fall, Winter, 5 units) Prerequisites: EEC110A, EEC157A (can be taken concurrently), EEC170 recommended (can be taken concurrently) if student intends to do the project with digital circuits. Design and construct an autonomous race car. Students work in groups to design, build and test speed control circuits, track sensing circuits, and a steering control loop.
For more information, please contact Lance Halsted (lehalsted@ucdavis.edu)

Effective Date: Fall 2011

Change in Technical Electives allowed for Electrical or Computer Engineering students

The Technical Elective list for EE and CE students is restricted to the following:

Up to a maximum of 6 units for any combination of engineering courses numbered 190C, 192, 198, and 199. With the exception of the following courses, upper-division courses in chemistry, engineering, mathematics, physics, and statistics may be taken as technical electives.

The courses which may *not* be used are

- Chemistry 195, 197
- Engineering Computer Science 188
- Engineering 191
- Engineering 198: Gearing Up for Grad School/Undergraduate Research
- Engineering 160 (restricted to one unit of technical elective)
- Mathematics 197TC
- Physics 137, 160 (both are restricted to one unit of technical elective), 195, 197T
- Statistics 100, 102, 103, 104, 106, 108

In addition, the following courses may be used:

Biological Sciences 101, 101D, 102, 103, 104, 120, 120P, 122, 122P, 132

Chemistry 2B, 2C

Engineering 35, 45

Economics 100, 101, 102, 103, 122, 140

Management 11A, 11B, 100, 120, 140, 150, 160, 170, 180

A new academic planning worksheet is now available on the website for your mandatory advising appointment. Please note that there is a separate form for EE and CE, and the form is double sided. The forms are available at http://www.ece.ucdavis.edu/undergraduate/docs/ecom_worksheet.pdf for Computer Engineering and http://www.ece.ucdavis.edu/undergraduate/docs/eeel_worksheet.pdf for Electrical Engineering.

Curriculum Changes

Note that students in the College of Engineering may graduate under the catalog in force when they graduate, or under the previous year's catalog. During transitions from one curriculum to another, petitions for course substitutions may be approved. Additional information will be available from the Undergraduate Student Affairs Officer.

Changes in curriculum have been approved for the **Electrical Engineering** major, to be effective in 2011-12. The following is an overview of these changes.

Note that students in the College of Engineering may graduate under the catalog in force when they graduate, or under the previous year's catalog. During transitions from one curriculum to another, petitions for course substitutions may be approved. Additional information will be available from the Undergraduate Student Affairs Officer.

1. ECS40, Introduction to Software Development and Object-Oriented Programming, is removed as a required course and replaced by either itself or an additional upper division ECE elective.
2. List of core electives. EEC150B, 157A and 160 are all in the same research area. The purpose of the core electives is for students to have a breadth of experience in the area of electrical engineering. Therefore, students may only use one of EEC150B, 157A and 160 as a core elective.

Changes in curriculum have been approved for the **Computer Engineering** major in the Department of Electrical and Computer Engineering, to be effective with the 2010-2012 catalog. The following is an overview of these changes.

Effective with the 2010-2011 academic year, the following changes will be implemented for Computer Engineering majors:

1. ENG 6, *Engineering Problem Solving* (4 units), is removed as a required course and replaced by Math 22AL, *Computer Lab for Linear Algebra* (1 unit).
2. EEC 173A, *Computer Networks*, is added as a required course.
3. The upper-division-elective requirement is changed to: one project elective and one upper division EEC or ECS course (excluding ECS 157).

New Course Announcement for Sophomore EE and CE Students: EEC89D Introduction to Digital and Analog Systems

In the Spring 2011, there will be a new elective course **offered only to EE and CE sophomores**. Students will be presented with an interactive and hands-on learning environment that introduces selected concepts that will be encountered in their junior and senior years. Concepts will include system

level discussion of analog and digital components, phenomenological discussion of the fundamentals of light emitting and photodiodes, use of embedded controllers to control electronic systems, exposure to time-frequency domains concepts and an introduction to communications links.

The course will be based on a programmable **embedded** system-on-chip (PSoc) that integrates configurable analog and digital peripheral functions, memory and a microcontroller on a single chip, which can then be programmed with C (for more information on PSoc see video at <http://www.cypress.com/?id=2233>).

While the course will not require a textbook, it will require a development board (\$125 with academic discount) for personal use and a student version of Matlab.

The course will be offered to at most 20 students. The students will be selected from an applicant pool at the end of pass one registration based on cumulative GPA and academic performance in prerequisites completed. Prerequisites for the course are ENG06 or MAT22AL, ECS30, PhysicS 9B and 9C and ENG17 (concurrent enrollment in ENG17 allowed).

Contact Professor André Knoesen for more details of the course. You can talk to Jennifer Flood to see how EEC89D fits into your plan of study. The course schedule information is available at <http://www.ece.ucdavis.edu/courses/schedule/spring2011.html>.

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