1. Course number and name
   • EE 4220: Senior Project Laboratory I

2. Credits and contact hours
   • 2 credits, 4 contact hours

3. Instructor’s or course coordinator’s name
   • Rodrigo Romero

4. Text book, title, author, and year

5. Specific course information
   a. brief description of the content of the course (catalog description)
      i. Research and analysis leading to a preliminary design for an approved engineering project. Includes formal project proposal and work plan; specification of functional, performance and cost goals; generation of computer-aided design documents and simulation or modeling results. Design process is concluded in EE 4230 through prototyping, testing, and revisions.
   b. prerequisites or co-requisites
      i. Prerequisites EE 3384 with grade of "C" or better; for all options except computer engineering: EE 4210. EE 4210 may be taken concurrently with EE 4220. For computer engineering option: EE 4142 or EE 4178. EE 4142 or EE 4178 may be taken concurrently with EE 4220
   c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program
      i. Required course

6. Specific goals for the course
   a. specific outcomes of instruction
      i. To develop an electronic functional system that incorporates and demonstrates competency in the four concentration areas (Computer Engineering, Fields and Devices, Systems/Communications, and General Electrical Engineering) of the Bachelor of Science in Electrical Engineering degree. The system should be capable of processing inputs in order to generate usable outputs. (ABET 1a through 7b). It should include a minimum:
         • Computational Component (Laptop, Microcomputer, microprocessor, or microcontroller)
         • User interface
         • Sensors
         • Design and fabrication of a printed circuit board
ii. Develop the proper documentation required to support and duplicate the project (ABET 3a, 3b).
iii. Effectively communicate, orally and in writing, the project work to faculty, project sponsors, and other students (ABET 3a, 3b, 4a, 4b, 5a).
iv. The design is concluded in EE 4230 (ABET 5a, 5b)

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
   i. Student Outcome 2a, “an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors”
   ii. Student Outcome 4a, “an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts”
   iii. Student Outcome 5a, 5b, “an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives”
   iv. Student Outcome 6a-6c, “an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions”
   v. Student Outcome 7a, 7b, “an ability to acquire and apply new knowledge as needed, using appropriate learning strategies”

7. Brief list of topics to be covered
   • The engineering product development process
   • System requirements
   • Project overview, team formation, project selection
   • Project proposal and team presentation
   • System design
   • Team member responsibilities
   • Subsystems design, simulations (if applicable), and construction
   • Unit and integration testing
   • System integration
   • Public system Demo