

University of Texas at El Paso

EE 4220 Senior Projects I

Fall 2017

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Office Hours: MW: 12:30 – 1:30 PM, other times by appointment

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Required Textbook: Design for Electrical and Computer Engineers—Theory, Concepts, and Practice, R. M. Ford and C.S. Coulston, ISBN 978-0-07-338035-3, McGraw-Hill

Course Objectives:

1. 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. It should include a minimum:
 - a. Microcomputer, microprocessor, or microcontroller
 - b. User interface
 - c. Sensors
 - d. Design and fabrication of a printed circuit board
2. Develop the proper documentation required to support and duplicate the project.
3. Effectively communicate, orally and in writing, the project work to faculty, project sponsors and other students.
4. The design is concluded in EE 4230.

Grading:

A = 90 – 100%

B = 80 – 90%

*C = 70 – 80%

D = 60 – 69%

F = Below 60^

***Passing Grade of C or better is required**

I. Assignments

1. Must be:
 - a. Typewritten and should include name, title of assignment, due date, and pages numbered sequentially.
 - b. Stapled on the upper left-hand corner of paper.
 - c. Bring two copies to class, and send one electronic copy to the Instructor and T.A.'s via email.
2. Spelling, punctuation, grammar, and neatness count 20%. There will be no make-

up work or extra credit assignments during the semester.

II. Miscellaneous

1. You are encouraged to pick up your assignments, quizzes, etc... If they are not picked up after two weeks, they will be destroyed
3. This syllabus is subject to change at any time with prior notice.

III. Incompletes

1. Are not granted in this course.

Work to be completed by the end of the first Senior Projects semester:

1. Attend all lab sessions as an integrated group. ***No more than 2 unjustified absences will be allowed. The student will be dropped from the course if 2 or more unjustified absences are accumulated during the semester.***
2. All electronic circuit designs must be simulated, designed, built, and tested.
3. All electronic computer simulations done via Proteus or other tools as appropriate
4. All circuit components to be used in the final system specified, including vendors and prices.
5. All circuit components purchased.
6. All mechanical, optical, acoustical, etc. designs completed.
7. All non-electrical parts sources identified. Costs established and parts ordered.
8. Commercial software identified and ordered.
9. New coded software completed and tested.
10. Laboratory Notebooks completed.
11. All subsystems functional and operational on breadboard.
12. Technical Report and system integration functional demonstration.

Tentative Fall 2017 Course Schedule:

WK NOTES

1. Project overview, team formation, project selection, Laboratory hours
2. Project proposal reviews, technologies to be used,
3. Block diagrams and schematics including individual workload.
4. What the system will deliver, specifications
5. What the system will deliver, specifications
6. Subsystems analysis
7. Subsystems analysis, simulation, and design
8. Subsystems analysis, simulation, and design
9. Subsystems analysis, simulation, and design
10. Progress update
11. Design reviews, simulations, components selection
12. Functional breadboard checkout presentations
13. Functional breadboard checkout presentations
14. Project documentation & System Demo