

# University of Texas at El Paso

## EE 4230 Senior Projects Lab II

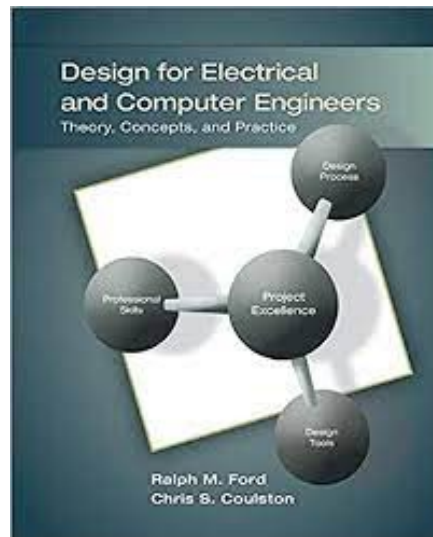
### Spring 2023

**Professor:** Hector Erives, Ph.D.  
**Email:** herivescon@utep.edu  
**Phone:** (915) 747-7950  
**Office Hours:** M-F 9:00 - 10:00 am or by appointment

**Teacher Assistant:** TBA

**Email:**

**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. Computational Component (Laptop, 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 this semester (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. All assignments should be uploaded into Blackboard.
2. Spelling, punctuation, grammar, and neatness count 30%. There will be no make-up work or extra credit assignments during the semester.

### **II. Incompletes**

Are not granted in this course.

**IV. Attendance.** Attendance in the lab and lecture will be recorded using online tools. Students must attend each session at least 90% of the time or they will be considered as absent from the session, at that point the instructor reserves the right to drop the student from the class. When absent, the student is responsible for obtaining notes, handouts, and assignments and will be required to meet the same deadlines as the rest of the class. Excused absences are limited to documented religious holidays and UTEP sponsored activities only. If you do have an emergency, please notify the instructor as soon as possible. Emergencies happen, unexpected situations arise, and you should use common sense and safe precautions when trying to get to lecture and/or lab.

**V. Teamwork and work ethic.** Positive work ethic is individual or group behavior leading to a systematic growth of productivity, reliability, accountability, and a sphere of healthy professional relationships (vs. R. Vaux. "Negative Work Ethic Definition". *Houston Chronicle*). Seventy percent of your final grade will be based on observed laboratory work, i.e. completion of the project, its quality, and its impact on the work of other team members. In every laboratory session, you must perform tangible work that makes progress toward the achievement of your individual project deliverables and those of the other team members. During every laboratory session, you must be able to provide to the instructor and the teaching assistant detailed technical descriptions of the work you have previously performed, activities under way during that session, and estimates of work remaining during the semester. You must also

demonstrate familiarity with the work being performed by the rest of your team and its impact on the team project deliverables.

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

1. Attend all lab sessions as an integrated group. ***The instructor reserves the right to drop a student from the course if 3 or more unjustified absences are accumulated during the semester.***
2. All electronic circuit designs must be simulated & completed.
3. All electronic computer simulations done via Proteus or other popular software.
4. All circuit components to be used in the final system properly identified, 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. Full ***Technical Report*** Completed.

### **Tentative Spring 2023 Course Schedule:**

#### **WK NOTES**

- Fully integrated system
- GAP Analysis. It involves the comparison of actual performance with potential or desired performance
- Printed Circuit Board (PCB) Layout
- PCB Checkout
- Detailed user's manual to be delivered to the client/sponsor
- One-sheet project description
- Final report with all sections; front matter, list of tables, list of figures, description of the system, recommendations for future work, references (other content will be discussed in class)
- Final poster of the project
- Final presentation to faculty sponsor and other faculty, undergraduate and graduate students, and classmates
- Full system demonstration during "Demo Day"

#### **COVID-19 PRECAUTION STATEMENT**

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to [covidaction@utep.edu](mailto:covidaction@utep.edu), so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID-19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit [epstrong.org](http://epstrong.org).