Course Description
EE2110-Basic Engineering Laboratory

2000-02 Catalog Data: Use of oscilloscopes, function generators, and power supplies. Introduction to diode rectifiers, RC filters, and zener regulators. Design of dc power supplies. Technical writing and computer aided design. Corequisite: EE 2351. Prerequisite: EE 1110 with a grade of C or better.

Prerequisite by Topic: 1. Introduction to Electrical Engineering laboratory procedures.
2. Causes and correction of errors in measurements.
3. Theory of operation and usage of basic Electrical Engineering test instruments
5. Introduction to Electrical Engineering


Textbook: There is no specific textbook for this course. Handouts of the related material are provided by the university.

Course Outcomes: Students completing EE 2110 will be able to:
1. Use basic lab equipment to make time-domain measurements (C).
2. Understand a Design / Development Cycle. This includes design conceptualization, schematic capture, computer simulation, design implementation, testing and project documentation (I).

Topics Covered: 1. Use of basic measurement / experiment test equipment (8hrs.)
2. Introduction to ideal transformer and diode models (4hrs).
3. Introduction to clipper and clamper circuits (4hrs).
4. Introduction to rectifiers (4hrs).
5. Introduction to RC filters (4hrs).
6. Introduction to zener diodes (4hrs).
7. Pros and cons of computer simulation (4hrs).
8. Design of a power supply as a project (20hrs).

Class Schedule: 1. One hour lecture per week.
2. Three hour laboratory per week.

Contributions to Professional Component:
EE 2110 is a sophomore level course that is one of a group required for Electrical and Computer Engineer bachelor degree programs. The course builds on topics covered primarily in freshman and sophomore required courses. The course may be taken as a departmentally approved elective.

Relationship to Program Outcomes:
2. Have an ability to design and conduct experiments; analyze and interpret data.
Students have lectures, prelabs, labs, and projects that teach these skills (Course outcomes 1 and 2).

3. Have an ability to design a system or component to meet desired needs.

Students design a project to specs (Course outcome 2).

4. Have an ability to function on multi-disciplinary teams.

The class is assigned an English TA to participate in grading reports. The project and labs are done in teams (Course outcome 2).

5. Have an ability to identify, formulate, and solve engineering problems.

Students have lectures, prelabs, labs, and projects that teach these skills (Course outcomes 1 and 2).

7. Have an ability to communicate effectively.

Students make lab reports and project reports (Course outcome 2).

11. Have an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Students use PSpice to simulate their project design. The design is then used to build the project device (Course outcome 2).

Course outcomes do not relate to Program Outcomes 1, 6, 8, 9, 10, and 12. They do correlate strongly with Educational Objective 1 (40%), Educational Objective 2 (40%), and Educational Objective 3 (20%).

Computer Usage: Students use PSpice as a design tool and to provide diagnostics. The diagnostics are then imported to Microsoft Office applications for reporting purposes.

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