ETEC 251 Solid State Electronics II
Credits: 3
Prerequisite: ETEC 250 Solid State Electronics I
Term: Autumn 2014

Meetings
Lectures: MW 11:10AM to 12:00PM in HB 05
Labs: Tuesday 10:10AM to 12:00PM in HB 05

Final Exam
Friday, December 12, 2014 8:00AM to 10:00AM in HB 05

Faculty Contact
Steve Shen – steve.shen@umontana.edu
Phone: 406-243-7914
Office Hours: Mondays and Wednesday: 12:00PM to 1:00PM
Thursdays: 3:00PM to 4:00PM
Office: Griz House 8

Course Description
ETEC Solid State Electronics II 3 cr. Offered autumn. Prereq. ETEC 250. An introduction to semiconductor technologies used in solid state electronics with an emphasis on amplifier circuits, field effect transistors, thyristors, and operational amplifiers. Classroom concepts are reinforced through lab-based experiments.

Course Overview
This course introduces the fundamentals of electronic discrete devices and circuits, and linear integrated circuits with applications and troubleshooting coverage. An introduction to programming for device testing is also included in the course.

Please note the course requires the purchase and downloading to your personal pc of the Multisim Software to perform the assigned lab experiments from the lab manual accompanying the Floyd text. This software is a onetime purchase and will be used with the other electronics courses as well. Instructions for this purchase requirement will be provided and assistance with starting it up on your pc will be available as well.

Course Objectives
Upon completion of this course students will be able to:

- Describe and analyze frequency response of amplifiers
- Describe Thyristors and circuits with applications
- Explain the operational circuits
- Analyze basic Op-Amp circuits
- Describe special-purpose Op-Amp circuits
- Describe and analyze active filters
- Describe and analyze oscillators
- Describe and analyze voltage regulators
- Explain basic programming concepts for automated testing
Required Materials


Scientific Calculator (recommend T1 84-Titanium, TI 86, or TI 89)

Multisim circuit simulation software: Here is a link for its purchase and download.

Evaluation Procedures

Grades will be assessed as follows
Assessment Area:

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<tr>
<th>Area</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Attendance</td>
<td>5%</td>
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<tr>
<td>Homework Assignments</td>
<td>20%</td>
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<tr>
<td>Midterm Exam</td>
<td>20%</td>
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<td>Final Exam</td>
<td>30%</td>
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<tr>
<td>Lab Exercises</td>
<td>25%</td>
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Grading Scale:

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<tr>
<th>Percentage</th>
<th>Grade</th>
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<tr>
<td>90-100%</td>
<td>A</td>
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<td>80-89%</td>
<td>B</td>
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<td>70-79%</td>
<td>C</td>
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<td>60-69%</td>
<td>D</td>
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<td>Below 60%</td>
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General Requirements for the Course

1. All the assigned lab experiments and projects are to be done with physical components, unless otherwise indicated by the instructor.
2. Multisim simulations are required for some of the lab experiments.
3. Please demonstrate every lab experiment and project to the instructor as soon as you complete them.
4. Late work may be accepted at most one week after the due date and can receive a maximum of 80% of the full credit.
5. No work will be accepted one week after the due date, or after the solutions have been gone through.
6. No work will be accepted after the final week of the semester.

Academic Integrity:

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at:
http://life.umt.edu/vpsa/student_conduct.php

Using the Web to research materials and concepts is an integral part of learning in the twenty-first century. Studying with other students is a productive method of learning. A certain amount of collaborating on concepts with other students and using resources found on the Internet in an assignment is recommended. Copy and paste is not acceptable. It is expected that each student will input his/her assignment into the computer, and each student must be able to explain any assignment turned in. Collaboration on exams is strictly forbidden.

Dropping and Adding Courses or Changing Sections, Grading or Credit Status
University Policy for dropping courses or requesting grading/credit status changes can be found in the catalog:

Students should become familiar with all academic policies.
For Complete Academic Policies Please View the Um Catalog at:
http://www.umt.edu/catalog/academics/academic-policy-procedure.php

Disability Accommodations:
Eligible students with disabilities will receive appropriate accommodations in this course when requested in a timely way. Please contact me after class or in my office. Please be prepared to provide a letter from your DSS Coordinator. For more information, visit the Disability Services website at http://www.umt.edu/dss . Or call 406.243.2243 (voice/text).

Changes to Syllabi:
NOTE: Instructor reserve the right to modify syllabi and assignments as needed based on faculty, student, and/or environmental circumstances. If changes are made to the syllabus, amended copies will be dated and made available to the class.

Cell Phone and other Electronic Communication Devices Policy:
All electronic communication devices must be tuned off and stowed away prior to the start of class.

Attendance Policy:
Regular classroom attendance is expected.

Exam, Project, and Assignment Policy:
All exams are to be taken on the assigned date and time. Projects and assignments are due at the start of class on the assigned date and time. Late assignments will be accepted at the instructor’s discretion. Rescheduling of an exam will be approved at the discretion of the instructor and only in extraordinary situations.

Learning Management System:
It is the responsibility of the student to access and familiarize herself/himself with the Learning Management System (LMS) for the course (Moodle). Access & training is available through UMOnline http://umonline.umt.edu

Topic Outline for ETEC 251 Solid State Electronics II
1. Amplifier Frequency Response
2. Thyristors
3. The Operational Amplifier
4. Basic Op-Amp Circuits
5. Special-Purpose Op-Amp Circuits
6. Active Filters
7. Oscillators
8. Voltage Regulators