Electrical Engineering 3121: Electronics II Laboratory
Prior Number - Electrical Engineering 256

Credit and Contact Hours
1 credit hour laboratory (One 110-minute sessions per week). This laboratory is taken simultaneously with Electrical Engineering 3120 (254).

Instructor
Graduate Teaching Assistants coordinated by a faculty member
R. Moss, Ph.D. (faculty coordinator)

Text(s)
Electronics II Laboratory Manual
Available at: http://ece.mst.edu/currentcourses/classnotesinfo/

Course Information
Course Description
Experiments in design with diodes, power transistors, integrated circuits, advanced bipolar and FET logic gates, flip-flops and registers.

Prerequisites
Electrical Engineering 3100 (253) and Electrical Engineering 3101 (255) with a grade of “C” or better. Electrical Engineering 3120 (254) is a corequisite.

Required or Elective
Elective for electrical engineering majors

Course Goals
General Outcomes
1. Learn some of the practical issues in designing and prototyping electronic circuits.
2. Conduct experiments that support the lecture course material in electronics.
3. Gain exposure to new circuit applications that are not covered in the lecture.
4. Gain additional experience in using laboratory instruments for performance measurements and troubleshooting.
### Relationship of Course to Program Outcomes

<table>
<thead>
<tr>
<th>ECE Outcome</th>
<th>Course Outcomes</th>
<th>Comments</th>
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<tbody>
<tr>
<td>a</td>
<td>M S S M</td>
<td></td>
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<tr>
<td>b</td>
<td>S S S S</td>
<td>Experiments move progressively towards this goal.</td>
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<tr>
<td>c</td>
<td>S S S S</td>
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<td>d</td>
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<tr>
<td>e</td>
<td>S S S S</td>
<td>All experiments require answering further questions.</td>
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<tr>
<td>f</td>
<td></td>
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<tr>
<td>g</td>
<td>M M W</td>
<td>An important part of this course is communicating results.</td>
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<td>h</td>
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<tr>
<td>i</td>
<td>W W S M</td>
<td>Students are exposed to manufacturers’ design aids.</td>
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<td>j</td>
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<td>k</td>
<td>S S S S</td>
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S – strong connection; M – medium connection; W – weak connection

### Topics Covered

1. Regulated DC power supply design. (1 week)
2. Real op-amps in real applications. (2 weeks)
3. Transistors as switches. (1 week)
4. Power amplifiers and feedback. (2 weeks)
5. Optocoupler applications. (2 weeks)
6. Applications of the 555 integrated circuit timer. (2 weeks)
7. Term project – using application notes. (3 weeks)