EST 305-3 Electronic Troubleshooting and Maintenance
Spring 2013 Syllabus
MWF 9:00 – 10:15, Room 204A

Instructor:  Martin Hebel
Office: ASA 211A
Phone: 453-8806
Email: mhebel@siu.edu
Please include EST 305 in the subject line along with other information.

Office Hours M, W, F: 10:30-12:30 or as arranged.

Textbook: Tomal, D. & Widmer, N. *Electronic Troubleshooting*, 3rd Ed.
ISBN: 0-07-142307-9

**COURSE DESCRIPTION:**
This course covers troubleshooting and maintenance of electronic and interrelated systems. Formalized troubleshooting and preventative maintenance procedures will be covered with hands on theoretical exercises. Other areas include customer relations, documentation and proper test equipment usage. Lecture and Laboratory. Prerequisite: EST 221 or consent of school.

**COURSE OBJECTIVES:**
Upon completion of this course, the student will be able to:
1) Use test equipment to properly measure a variety of signals and conditions.
2) Understand, anticipate, and calculate meter loading and general measurement errors.
3) Understand the basic methodology of calibration. Perform a calibration using prime standards.
4) Write a preventive maintenance procedure for a device. Construct a maintenance schedule and approximate the workload involved.
5) Understand the basic steps used in troubleshooting.
6) Maintain proper paperwork.
7) Troubleshoot and repair electronic and control systems.
8) Analyze systems based on descriptions and problems.
9) Interface with customers and clients in meeting needs and evaluating symptoms.

**COURSE CONTENT:**
During this course, troubleshooting & maintenance will be explored through theory, simulation, equipment use, construction & calibration of a system, and through project implementation and documentation.

**GRADING (approximate percentages):**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Attendance</td>
<td>See Below</td>
</tr>
<tr>
<td>Homework</td>
<td>20%</td>
</tr>
<tr>
<td>Lab work &amp; Projects</td>
<td>55%</td>
</tr>
<tr>
<td>Exams</td>
<td>20%</td>
</tr>
<tr>
<td>Assessment Exam</td>
<td>5% + 5% extra credit</td>
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**Grading Scale:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
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<tbody>
<tr>
<td>A</td>
<td>90% and above</td>
</tr>
<tr>
<td>B</td>
<td>80% to &lt; 90%</td>
</tr>
<tr>
<td>C</td>
<td>70% to &lt; 80%</td>
</tr>
<tr>
<td>D</td>
<td>60% to &lt; 70%</td>
</tr>
<tr>
<td>F</td>
<td>Below 60%</td>
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**Attendance** is very important – much of the course will be lab work and many times working in teams or small groups. Missed days mean missed bench time and participation with your team. Each missed day will result in a loss of 1% off your final grade. Frequent late days will be counted as a missed day. A mechanism will be put into place where students that are ahead in work may miss days in some situations.
**Homework** will be primarily on-line questions using SIU Online. Late submission of on-line homework will not be allowed. It will also be used to list upcoming due dates on the calendar.

**Lab work** will consist of bench work and other in-class activities and any reports or written materials based on these activities. Late lab work or reports will result in a loss of 20% per school day. While performing shared lab work, students involved in the activity will receive the same grade for the work unless it is apparent or brought to the instructor’s attention that work was not evenly shared.

One or more **semester projects** will be performed during the course. The intent of the projects are to engage the student in research, planning, implementation and troubleshooting. Formal reports and presentations will be included in the project.

**Exams** will be given periodically based on text material, homework, and other sources presented in class. Missed exams can generally not be made up unless I am informed of the reason before hand where possible. **Final Exam meeting is scheduled for Wed., May 8th, 7:50 to 9:50 AM.**

The **assessment exam** is a general knowledge and troubleshooting exam that will be used as part of EST assessment report. It will contain questions covering the first two years the electronics curriculum. A review guide will be provided in early March with the exam near the end of the semester. While course material from those courses is covered as needed, this course will not act as review course for the exam. Students are expected to use their past education, course materials and outside sources to prepare for the exam. The exam will count for 5% of your normal grade and an additional 5% of extra credit.

**Academic Dishonesty:**
Students may be subject to disciplinary proceedings resulting in an academic penalty or disciplinary penalty for academic dishonesty. Academic dishonesty includes, but is not limited to, cheating on a test, plagiarism, or collusion.

**ADA Statement for Students Requiring Special Accommodations:**
As per 504 of the Vocational Rehabilitation Act of 1973 and the American Disabilities Act (ADA) of 1990, if accommodations are needed, inform the instructor or program advisor as soon as possible.

**Emergency Procedures**
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on the BERT website at [www.bert.siu.edu](http://www.bert.siu.edu), Department of Public Safety’s website at [www.dps.siu.edu](http://www.dps.siu.edu) (disaster drop down) and in Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.