EST 305-3 Electronic Troubleshooting and Maintenance
Spring 2009 Syllabus
MWF 8:00 – 9:20, Room 204A

Instructor: Martin Hebel

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Please include EST 305 in the subject line along with other information.

Office Hours T, Th: 11:00 - 12:00, 1:00- 3:00

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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 221or 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.
4) Understand the basic methodology of calibration. Perform a calibration using prime standards.
5) Write a preventive maintenance procedure for a device. Construct a maintenance schedule and approximate the workload involved.
6) Understand the basic steps used in troubleshooting.
7) Maintain proper paperwork.
8) Troubleshoot and repair electronic and control systems.
9) Analyze systems based on descriptions and problems.
10) 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. To aid in the progress & development of this course, students are asked to provide constructive feedback in helping to ensure the course meets its objectives and is beneficial.

GRADING:

Attendance:	See Below
Homework:	25%
Lab work:	35%
Exams:	20%
Project:	15%
Assessment Exam:	5% + 5% extra credit

Grading Scale:

90% an above:	A
80% to < 90%	B
70% to < 80%	C
60% to <70%	D
Below 60%	F

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 2% 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.

Homework will be mainly on line questions using BlackBoard. Late submission of on-line homework will not be allowed. Blackboard 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 10% per school day.

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.

A **semester project** will be performed during the course. The intent of the project is to engage the student in research, planning, implementation and troubleshooting. A formal report and presentation will be included in the project.

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, generally, the first two years of the EST curriculum. A study guide will be provided in early February with the exam near the end of the semester. While in the progress of the 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 addition 5% of extra credit.

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.

EQUIPMENT:
Scientific calculator with trigonometric functions
Penlight and small screwdriver set recommended

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, Department of Public Safety's website at 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.