Course Description
This course provides students with guided experience in diagnosing, analyzing and repairing various electronic circuits and equipment. Emphasis is placed on problem solving techniques, analysis and documentation. Laboratory fee: $30. Usually offered in the spring.

Prerequisites: EET 120 and EET 205, or permission of the department head.

Textbook:
Lecture: Perozzo, James, The complete guide to Electronics Troubleshooting; New York: Delmar publisher (ITP), 1998

Course objectives: Listed below are course objectives and associated learning outcomes:

1. Describe proper procedure to use in evaluating the problems.
   A. Distinguish operator errors from actual equipment failures.
   B. Follow calibration procedure from operator manuals.
   C. Observe symptoms and confirm failures.
   Assessment Strategy: Exam questions, quizzes and homework.

2. Describe simple maintenance and troubleshooting procedure.
   A. Perform tests to verify equipment has been repaired properly.
   B. Ensure equipment is grounded properly.
   C. Use proper safety techniques when performing on live circuits.
   Assessment Strategy: Exam questions, quizzes and homework.

3. Use techniques for troubleshooting intermittent problems.
   A. Check the power supply within the equipments that provides proper voltages.
   B. Identify the nature of intermittent problems.
   C. Describe precautionary measure using probe to probe into live circuitry.
   Assessment Strategy: Exam questions, quizzes and homework.

4. Perform diagnostic testing on equipment.
   A. Define the sensitivity and selectivity of a receiver.
   B. Make repairs on the audio and video equipments.
   Assessment Strategy: Exam questions, quizzes and homework.
5. Trace signal through circuit board, system interfaces, cable and components.
   A. Describe the procedure for isolating the defective card.
   B. Perform testing for all possible combination of shorting or grounding paths.
   C. Perform testing for continuity of wires in a cable.

Assessment Strategy: Exam questions, quizzes and homework.

6. Describe the Capacitor and inductors failure patterns in low frequency circuits.
   A. Measure the phase shift as the frequency applied is changed.
   B. Describe how audio transformers work on higher frequency.
   C. Examine how the time constant of an RL circuit relates to the period of the incoming signal.

Assessment Strategy: Exam questions, quizzes and homework.

7. Determine the operating voltage and maximum current demanded by the circuit under test.
   A. How to set up the voltage regulated bench power supply for resistive loads.
   B. Describe how foldback power supply works.
   C. Explain how attaching an oscilloscope can damage some equipment.

Assessment Strategy: Exam questions, quizzes and homework.

8. Explain the special techniques of tracing signals through circuits with non-sinusoidal signals.
   A. Describe data transfer rate and bps rate.
   B. Show how switching transistors are designed specifically for pulse circuits.
   C. Explain how can high-powered pulse circuits damage a voltmeter or an oscilloscope.

Assessment Strategy: Exam questions, quizzes and homework.

*Note: Assessment Strategy: There is a required Graded Electronic library Database assignment
*Satisfies GEO objectives 1,2,3,4,7

**COURSE GUIDELINES**
The course will be lecture and laboratory per week.

An Electronic library research paper exploring some aspect of Electronic troubleshooting will be required with the following minimum requirements: Reference from The electronic library database collection. Due week 12: Cover page with name, title and date; body with Introduction, report and summary. The paper shall be not less than three full pages, and a bibliography from the electronic library database page with a minimum of four total references.

**COURSE EVALUATION**
The grade will be based on 1000 points which will be divided as follows:

- Electronic Library database Assignment = 50 points
- Class Preparation & Participation = 50 points
- Monthly Quizzes = 450 points
- Competency = 100 Points
- Comprehensive Final Exam = 200 points
- Laboratory Exercises = 150 points

TOTAL 1,000 points

Letter grade will be assigned as follows:  A = 900-1000 points, B = 800-899 points, C = 700-799 points, D = 600-699 points, F - Less than 600 points

**ACADEMIC HONESTY POLICY:**
Students are expected to maintain a high level of academic performance. Cheating and plagiarism are defined in the college catalog. Infractions of this policy will result in the student’s failure for the assignment or test.

*Addresses GEO objectives 8
H1N1 STATEMENT:
In the event of a flu epidemic or other emergency that results in the suspension of classes, faculty will be communicating with students about their courses and course requirements, such as assignments, quiz and exam dates, and class and grading policies, via faculty websites or Blackboard. Students will be responsible for completing all these assignments in accordance with class policies. Information about the resumption of classes will be communicated via the College’s website and email system.

STATEMENT CONCERNING USE OF BLACKBOARD IN COURSE:
Blackboard is being used as a supplementary site in this course. To access course content in Blackboard you need to have access to Internet connection, (other requirements may apply). Computers that meet these requirements are available on campus in MTC 200, AAB 217, HH 100, GH 204, WDC 305, and AHB 108.

Please follow these directions to access course syllabi and any other materials posted for this course:
Login Information:
Log in to myWor-Wic for access to the class Blackboard site. The Blackboard link can also be access at the bottom of the Wor-Wic homepage and under Quick link.

STATEMENT CONCERNING USE OF ACADEMIC INTEGRITY AND COMPUTER USAGE POLICY:
All students logging into Blackboard affirm that they understand and agree to follow Wor-Wic Community College policies regarding academic integrity and the use of College resources as described in the college catalog. Wor-Wic Community College considers the following as violations of the computer usage policy:
Using the campus computing network and facilities to violate the privacy of other individuals.
Sharing of account passwords with friends, family members or any unauthorized individuals
Violators are subject to college disciplinary procedures.

Grading Rubric

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<thead>
<tr>
<th>CATEGORY</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>F</th>
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<tbody>
<tr>
<td>Practical (Use of technology to obtain information GEO 7)</td>
<td>Each assignment demonstrates an understanding of the objective. The correct use of commands and syntax is evident. Assignments always meet and exceed stated requirements.</td>
<td>Most assignments demonstrate an understanding of the objective. The correct use of commands and syntax is evident. Assignments meet and usually exceed stated requirements.</td>
<td>Some assignments demonstrate an understanding of the objective. The correct use of commands and syntax is usually evident. Assignments meet the stated requirements.</td>
<td>Assignments incomplete or missing. Shows little or no effort in assigned work. Assignment does not meet stated requirements.</td>
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<tr>
<td>Theory (Use of Technology to communicate information GEO 7)</td>
<td>Each of the problems/answers is accurate and demonstrates understanding of the objective. Well formatted and saved in the appropriate file format. Work always exceeds stated requirements.</td>
<td>Most of the problems/answers are accurate and demonstrates understanding of the objective. Well formatted and saved in the appropriate file format. Work usually exceeds stated requirements</td>
<td>Some of the problems/answers are accurate and demonstrates understanding of the objective. Formatted and saved in the appropriate file format. Work meets stated requirements.</td>
<td>Problems/answers usually show no understanding of the objective. Work does not meet the stated requirements.</td>
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