

PELLISSIPPI STATE COMMUNITY COLLEGE  
MASTER SYLLABUS

**INTRODUCTION TO ELECTRICAL ENGINEERING TECHNOLOGY**  
**EET 1001**

**Class Hours: 0**  
**Laboratory Hours: 3**

**Credit Hours: 1**  
**Date Revised: Fall 2016**

**Catalog Course Description**

Emphasis on introduction to electronic equipment, components, and software, focusing on the application of the multimeter, oscilloscope, function generator, power supply, and circuit simulation software. Practical soldering techniques are introduced and practiced. Discussion includes modern electronic systems, such as a microcontroller and a variety of electronic sensors, and an introduction to robotics.

**Prerequisites**

None

**Co-requisites**

None

**Textbook(s) and Other Course Materials:**

None required. Student will be required to purchase Electronic Trainer Kit to be constructed as part of the course. Approximate cost: \$30.00.

**Week/Unit/Topic Basis**

**Week Topic**

1. Lecture: How to Solder and Construct the Digital Multimeter
2. Lecture: Introduction to Professional Ethics  
Construction of Digital Multimeter Section A
3. Lecture: Introduction to Schematics and Symbols  
Test of Digital Multimeter Section A
4. Lecture: Introduction to Engineering Prefixes/Units  
Construction of Digital Multimeter Section B
5. Lecture: Resistors and Color Code  
Test of Digital Multimeter Section B
6. Lecture: Multimeter and Power Supply  
Construction of Digital Multimeter Section C
7. Lecture: Multimeter and Power Supply  
Test of Digital Multimeter Section C
8. Lecture: Oscilloscope and Function Generator  
Construction and Test of Digital Multimeter Section D
9. Lecture: Oscilloscope and Function Generator

Construction and Test of Digital Multimeter Section E

10. Lecture: Schematic Software  
Final construction and Test of Digital Multimeter Section F
11. Lecture: Schematic Software  
Basic Electrical Theory and using Meters
12. Lecture: Schematic Software  
Basic Electrical Theory and using Oscilloscope
13. Lecture: Schematic Software  
Introduction to the basic stamp programming
14. Lecture: Schematic Software  
Basic stamp programming of servos
15. Final Exam Period

### **Engineering Technology General Outcomes (Educational objectives)**

- I. Apply basic engineering theories and concepts creatively to analyze and solve technical problems
- II. Utilize with a high degree of knowledge and skill equipment, instruments, software, and technical reference materials currently used in industry.
- III. Communicate effectively using developed writing, speaking, and graphics skills.
- IV. Assimilate and practice the concepts and principles of working in a team environment.
- V. Obtain employment within the discipline or matriculate to a four year program in engineering or industrial technology

### **Engineering Technology Concentration Competencies:**

NOTE: At the program level all 6 competencies apply to roman numerals I – V of the Engineering Technology General Outcomes (Educational objectives) listed above.

### **Students will**

- A. Apply the knowledge, techniques, skills, and modern tools for the concentration of study to specifically defined engineering technology activities
- B. Demonstrate the knowledge of mathematics, science, engineering and technology to engineering technology problems using developed practical knowledge
- C. Conduct and report the results of standard tests and measurements, and conduct, analyze and interpret experiment or project results
- D. Function effectively as a member of a technical team
- E. Identify, analyze and solve specifically defined engineering technology-based problems
- F. Employ Written, oral and visual communication in a technical environment

### **Course Goals**

NOTE: Capital letters after course goals reference the competencies of the Engineering Technology concentrations listed above.

The course will

1. The course will guide students toward effective use of proper measurement techniques using multimeters. (A, B, C, D, E)
2. The course will guide students toward effective use of oscilloscope operation. (A, B, C, D, E)
3. The course will guide students toward effective soldering techniques. (A, B, C, D, E)
4. The course will guide students toward effective understand schematic layout software. (A, B, C, D, E)
5. The course will expand student understanding the importance of Professional Ethics, time management, and quality work habits. (A, B, C, D, E)
6. The course will guide students toward effective use of function generators. (A, B, C, D, E)
7. The course will guide students toward effective use of a power supply. (A, B, C, D, E)
8. The course will guide students in the proper use of Engineering Units and abbreviations. (A, B, C, D, E, F)
9. The course will guide students toward how to identify resistors by color code. (A, B, C, D, E)

### **Expected Student Learning Outcomes**

NOTE: Numbers after Expected Student Learning Outcomes reference the course goals listed above.

The student will

- a. Take resistance measurements using a multimeter. (1)
- b. Take voltage measurements using a multimeter. (1)
- c. Take current measurements using a multimeter. (1)
- d. Make DC voltage measurements using an oscilloscope. (2)
- e. Make waveform measurements using an oscilloscope. (2)
- f. Solder components on a printed circuit board neatly (3)
- g. De-solder and replace components on a printed circuit board. (3)
- h. Draw schematic using available software. (4)
- i. Able to make Professional Ethical decisions. (5)
- j. Able to manage their time effectively. (5)
- k. Able to set up specified waveform on a function generator. (6)
- l. Able to setup a specified voltage on a power supply. (7)
- m. Able to express all numbers in Engineering units. (8)
- n. Able to use Engineering numbers in calculations. (8)
- o. Able to select resistors based on color code. (9)

### **Evaluation**

Testing Procedures: 50% of grade

Quizzes	30%
Final Exam	20%

Laboratory Expectations: 50% of grade

40% - Completion of the Digital Multimeter will provide 40% of the final grade.

10% - Completion of four basic programs – each worth 2.5%

Field Work:

Students shall participate in one class field trip. A report will be required that will be part of the laboratory grade.

Other Evaluation Methods: None

Grading Scale:

A 93 - 100

B+ 88 - 92

B 83 - 87

C+ 78 - 82

C 70 - 77

D 60 - 69

F Below 60

## **Policies**

### **Attendance Policy**

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

### **Academic Dishonesty**

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.

- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

### **Accommodations for Disabilities**

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disability Services (DS) in order to receive accommodations in this course. [Disability Services](#) (<http://www.pstcc.edu/sswd/>) may be contacted via [Disability Services email](#) or by visiting Alexander 130.