Virginia Western Community College
ELE 298
Seminar and Project in Electrical Engineering Technology

Prerequisites

ETR 114- Studies DC and AC circuits, basic electrical components, instruments, network theorems, and techniques used to predict, analyze and measure electrical quantities.

ETR 237- Studies linear integrated circuits for industrial applications, motors, industrial control devices, power control circuits, transducers, industrial process control, and sequential process control.

ETR 280- Studies digital logic, Boolean algebra, and arithmetic circuits, using standard integrated circuits and the functional block approach. Introduces concepts of computers, the internal operation and control language.

Corequisites

None

Course Description

Requires completion of a project or research report related to the student's occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field.

Semester Credits: 3 Lecture Hours

Required Materials

Textbook:

ETA International, The Associate CET Study Guide. Copyright © 2012 by ETA International, Inc.
ISBN: 1-891749-07-2

Software:

National Instruments MultiSim (all software available in the VWCC Computer Labs). Free access to the software will be provided by the school.

Other Required Materials:

Scientific Calculator required, must have natural entry. Examples include Casio fx-115ES PLUS,TI-36X, TI-84, TI-89(optional for EET's).

The student must pay for the Associate Electronics Technicians Certification Exam. The fee is ~ $60, and the 2 hour test is taken at VWCC at the end of the semester.

Course Outcomes

- Apply electrical theory gained in previous courses to practical situations.
- Review and recite material to prepare for professional credentialing.
- Demonstrate skills in soldering electronic components.
- Demonstrate proficiency in the Computer-Aided-Design of a printed circuit board.
- Demonstrate advanced capability in electrical simulation of electronic circuits.
- Demonstrate proficiency to accomplish an electronic technician's task or project.
- Demonstrate soft skills in the oral presentation of the technical details of a circuit design, circuit analysis, and test results.
- Articulate the technical and business operations of several local electronic companies and how the student might pursue career opportunities at each company.

Topical Description

- Topics for Electronics Certification Testing
    - Electrical Safety
    - DC Electronics
    - AC Electronics
    - Passive Components
    - Semiconductor Components
    - Amplifiers
    - Electronic Communications
    - Analog Circuits
    - Digital Circuits
    - Computer Hardware and Software
    - Motors

    - Electronic Instrumentation and Measurements
    - Best Lab Practices

- Other Course Topics
    - Circuit Simulation
    - Printed Circuit Board Design
    - Soldering
    - Component Research and Procurement
    - AC and DC Measurements
    - Project Management and Reporting
    - Oral Presentation

Notes to Instructors

Students are required to complete an electronics project and present their results. VWCC will purchase components for each project.

It is recommended that the instructor arrange several electronic company tours during class hours.

This class uses the Associate Certified Electronics Technicians Material to prepare students for a certification by the Electronics Technician Association International (ETAI). Students will be able to receive a CETa certification at the end of the course.

Beginning Fall 2020, VWCC will require students to have a computer or reliable access to a computer, capable of participating in an online format. Online courses at Virginia Western require a significant amount of interaction with Canvas, the Learning Management System, and many require real-time class sessions using the Zoom web-conferencing tool. To be successful in online classes, students must have substantial access to a computer with hi-speed internet connectivity. The expected requirements are listed on the college webpage.

ADA Statement (PDF)
Title IX Statement (PDF)