

Electrical Engineering Technology

Program Mission Statement

The mission of the Electrical Design Concentration is to provide a quality learning environment conducive to providing students with the skills and competencies necessary for employment or career advancement as engineering technicians in the electrical/industrial controls field of industry.

ETAC/ABET Engineering Technology Criteria

(from Criteria for Accrediting Engineering Technology Programs, 2013-2014,
<http://www.abet.org/DisplayTemplates/DocsHandbook.aspx?id=3150>)

Program Educational Objectives and Student Outcomes must support ETAC/ABET Engineering Technology criteria a-i:

- a. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities;
- b. an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge;
- c. an ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments;
- d. an ability to function effectively as a member of a technical team;
- e. an ability to identify, analyze, and solve narrowly defined engineering technology problems;
- f. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- g. an understanding of the need for and an ability to engage in self-directed continuing professional development;
- h. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and
- i. a commitment to quality, timeliness, and continuous improvement

Also, the Program Educational Objectives and Student Outcomes must support ETAC/ABET Electrical Engineering Technology outcomes:

An creditable program in Electrical/Electronic(s) Engineering Technology will prepare graduates with the technical and managerial skills necessary to enter careers in the design, application, installation, manufacturing, operation and/or maintenance of electrical/electronic(s) systems. Graduates of associate degree programs typically have strengths in the building, testing, operation, and maintenance of existing electrical systems, whereas baccalaureate degree graduates are well prepared for development and implementation of electrical/electronic(s) systems.

Graduates of associate degree programs must demonstrate knowledge and hands-on competence appropriate to the goals of the program in:

- a. the application of circuit analysis and design, computer programming, associated software, analog and digital electronics, and microcomputers, and engineering standards to the building, testing,

operation, and maintenance of electrical/electronic(s) systems.

b. the applications of physics or chemistry to electrical/electronic(s) circuits in a rigorous mathematical environment at or above the level of algebra and trigonometry.

Program Educational Objectives

Within a few years of graduation, Electrical Engineering Technology – Electrical Design concentration students are expected to:

- EO-1 attain successful and productive electrical engineering technology or related careers with attention to ethical standards and effective communication;
- EO-2 engage in life-long learning activities, such as continued studies and/or professional workshops and conferences
- EO-3 engage in professional service, such as participation in professional society and/or community service

The Electrical Engineering Technology faculty members periodically review these objectives. As part of this review process, the faculty members encourage comments from all interested parties including current students, alumni, prospective students, faculty, employers of graduates, those who admit our graduates to other programs, members of related professional organizations, and colleagues from other educational institutions. Please send comments to our program coordinator Garry Spencer, gspencer@southwest.tn.edu.

Student Outcomes/Program Outcomes

The graduating student will be able to:

- PO-1. write and orally present technical reports using correct technical vocabulary.
Covers ETAC/ABET criteria: a, f, h, i
- PO-2. apply creativity and teamwork to the solution of problems in case studies and design assignments with an awareness of societal issues and ethical responsibilities.
Covers ETAC/ABET criteria: c, d, e, f, g, h, i, and EET-a
- PO-3. identify, analyze and solve technical problems using correct theory, laws, and formulas, including physics, to electrical/electronic circuits.
Covers ETAC/ABET criteria: a, b, c, e, and EET-a, b
- PO-4. assemble, test, maintain, troubleshoot, analyze, and interpret experiments relating to electrical/electronic systems and measure electrical/electronic quantities using state-of-the-art instruments and tools in a safe manner.
Covers ETAC/ABET criteria: a, c, and EET-a
- PO-5. perform information technology skills including word processing, spread sheets, electrical/electronic simulations, computer programming, internet/library research, and CAD drawing encouraging and increasing one's abilities for lifelong learning.
Covers ETAC/ABET criteria: a, g, i, and EET-a
- PO-6. understand and explain the operation of industrial electrical/electronic devices and circuits.
Covers ETAC/ABET criteria: a, b, c, e, and EET-a

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