# Electrical Engineering Technology B.S.

## Electrical Engineering Technology Major

The B.S. Electrical Engineering Technology major requires a minimum of 120 total hours to graduate. This total includes UNIFI/ General Education requirements and the following specified major requirements, plus electives to complete the minimum of 120 hours.

The Electrical Engineering Technology major provides theoretical and hands-on experience in the field of electrical circuits, conventional and renewable electrical energy, analog/digital electronics, microprocessors, modern electronic communication systems, digital signal processing, power electronics, control systems, networking, and their applications. The Electrical Engineering Technology Program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org.

| | | |
|---|---|---|
| Mathematics (take two of the following four courses): | | 8 |
| MATH 1140 | Precalculus ^ | |
| MATH 1150 | Calculus for Technology | |
| MATH 1420 | Calculus I | |
| MATH 1421 | Calculus II | |
| STAT 1772 | Introduction to Statistical Methods ^ | 3 |
| Computer Science: | | |
| CS 1160 | C/C++ Programming | 3 |
| Physics: | | |
| PHYSICS 1511 | General Physics I ^ | 4 |
| Required Core: | | |
| ENGLISH 1005 | College Writing and Research | 3 |
| ENGLISH 3772/5772 | Technical Writing for Engineering Technologists | 3 |
| PHIL 1560 | Science, Technology, and Ethics (STE) | 3 |
| ENGR 1000 | Introduction to Engineering & Professional Practice | 3 |
| TECH 1037 | Introduction to Circuits | 3 |
| TECH 1039 | Circuits and Systems | 3 |
| TECH 2051 | Analog Electronics | 4 |
| TECH 2053 | Digital Electronics | 4 |
| TECH 2055 | Electrical Power Systems & Machinery | 4 |
| TECH 3129 | Linear Control Systems | 3 |
| TECH 3157/5157 | Microcontroller Applications | 3 |
| TECH 3160/5160 | Computer-Aided Instrumentation and Interfacing | 3 |
| TECH 3164 | Programmable Logic Controllers (PLCs) | 3 |
| TECH 4103/5103 | Electronic Communications | 3 |
| TECH 4104/5104 | Applied Digital Signal Processing | 3 |
| TECH 4165/5165 | Wireless Communication Networks | 3 |
| TECH 4167/5167 | Power Electronics Applications | 3 |
| ENGR 4500 | Senior Design @ | 3 |
| Recommended Electives: | | |
| TECH 3179 Cooperative Education | | |
| CS 1510 | Introduction to Computing | |
| TECH 1024 | Engineering Design with CAD | |
| TECH 3196 | Industrial Safety | |
| PHYSICS 1512 | General Physics II | |
| CONSTR 1015 | Introduction to Sustainability | |
| TECH 3131/5131 | Technical Project Management | |
| **Total Hours** | | **75** |

^ Has prerequisite of satisfactory score on ALEKS exam or subsequent remediation.

@This course meets the Bachelor of Science degree undergraduate research course requirement.

Additional Program Requirements:

1. All 4000 level technology courses must be taken at UNI, i.e. no transfer is accepted for 4000 level technology courses.

2. All students in the program must have a UNI GPA of 2.00 or higher before they are allowed to take any TECH courses they have not already taken.

## Four-Year Plan

### Electrical Engineering Technology, B.S.

This is a sample plan of study with a suggested sequencing of classes for the major. University electives may be applied to earn additional academic majors, minors, or certificates. Students should regularly meet with their academic advisor to plan their specific semester schedule to include UNIFI/General Education program and/or university elective hours required.

| Course | Title | Hour |
|---|---|---|
| **Freshman** | | |
| **Fall** | | |
| UNIFI/General Education or University Electives | | 6 |
| MATH 1140 | Precalculus | 4 |
| ENGR 1000 | Introduction to Engineering & Professional Practice | 3 |
| TECH 1037 | Introduction to Circuits | 3 |
| | **Hours** | **16** |
| **Spring** | | |
| UNIFI/General Education or University Electives | | 9 |
| MATH 1150 | Calculus for Technology | 4 |
| TECH 1039 | Circuits and Systems | 3 |
| | **Hours** | **16** |

| | | |
|---|---|---|
| **Sophomore** | | |
| **Fall** | | |
| UNIFI/General Education or University Electives | | 3 |
| CS 1160 | C/C++ Programming | 3 |
| TECH 2051 | Analog Electronics | 4 |
| TECH 2053 | Digital Electronics | 4 |
| | **Hours** | **14** |
| **Spring** | | |
| UNIFI/General Education or University Electives | | 3 |
| PHYSICS 1511 | General Physics I | 4 |
| PHIL 1560 | Science, Technology, and Ethics (STE) | 3 |
| TECH 2055 | Electrical Power Systems & Machinery | 4 |
| | **Hours** | **14** |
| **Junior** | | |
| **Fall** | | |
| UNIFI/General Education or University Electives | | 6 |
| STAT 1772 | Introduction to Statistical Methods | 3 |
| TECH 3129 | Linear Control Systems | 3 |
| TECH 3157/5157 | Microcontroller Applications | 3 |
| | **Hours** | **15** |
| **Spring** | | |
| TECH 3160/5160 | Computer-Aided Instrumentation and Interfacing | 3 |
| TECH 3164 | Programmable Logic Controllers (PLCs) | 3 |
| ENGLISH 3772/5772 | Technical Writing for Engineering Technologists | 3 |
| UNIFI/General Education or University Electives | | 6 |
| | **Hours** | **15** |
| **Senior** | | |
| **Fall** | | |
| UNIFI/General Education or University Electives | | 12 |
| TECH 4103/5103 | Electronic Communications | 3 |
| | **Hours** | **15** |
| **Spring** | | |
| UNIFI/General Education or University Electives | | 3 |
| TECH 4104/5104 | Applied Digital Signal Processing | 3 |
| TECH 4167/5167 | Power Electronics Applications | 3 |
| ENGR 4500 | Senior Design | 3 |
| TECH 4165/5165 | Wireless Communication Networks | 3 |
| | **Hours** | **15** |
| | **Total Hours** | **120** |

# Learning Outcomes

## Electrical Engineering Technology, B.S.

**Program Educational Objectives (PEOs):**

- Technical professionals: Development of technical professionals through a comprehensive education and experience in design, manufacture and service of electrical and electronic systems.
- Applications Based skill sets: Application of engineering concepts and theories into timely, real world solutions for development, building, testing, implementation, operation and maintenance of electrical and electronics systems.
- Lifelong Learning and Growth: An understanding of the value, and desire for continued lifelong learning both professionally and personally.
- Professional Behavior: Effective leadership abilities, communication skills and ethical behavior.

**Student Learning Outcomes (SLOs):**

- Students will apply circuit analysis and design, computer programming, associated software, analog and digital electronics, microcontrollers, and engineering standards to the building, testing, operation, and maintenance of electrical/electronic(s) systems.
- Students will have knowledge of fundamental principles of science and mathematics and apply linear transform techniques, applied differential equations, and integral calculus to analyze, test, design control, power, and communication systems.
- Students will have the ability to design components and systems based on specified requirements and design techniques, and carry out tests, analyze and interpret data to improve processes and systems.
- Students will apply project management techniques to analyze and manage the progress of electrical, electronic system design and development projects, demonstrating project and time management skills.
- Students will produce clear, precise and effective technical documents and oral presentations for both professional and general audiences with the help of modern information technologies and use appropriate technical literature.
- Students will collaborate with each other in laboratory and classroom settings to work effectively in teams, and demonstrate leadership on individual and team projects.

# Related Programs

- Manufacturing Engineering Technology B.S.