

APPLIED ENGINEERING & TECHNOLOGIES

ELECTRICAL SYSTEMS TECHNOLOGY

Electrical Systems Technology Degree - A35130

The Electrical Systems Technology curriculum is designed to provide training for persons interested in the installation and maintenance of electrical systems found in residential, commercial, and industrial facilities.

Training, most of which is hands-on, will include such topics as photovoltaic AC/DC theory, basic wiring practices, programmable logic controllers, industrial motor controls, the National Electrical Code, and other subjects as local needs require.

Graduates should qualify for a variety of jobs in the electrical field as an on-the-job trainee or apprentice assisting in the layout, installation, and maintenance of electrical systems.

Program Sequence

First Semester

| | | |
|---------|----------------------------|---|
| BPR 130 | Print Reading-Construction | 3 |
| ELC 112 | DC/AC Electricity | 5 |
| ELC 113 | Residential Wiring | 4 |
| ELC 118 | National Electrical Code | 2 |
| ELC 126 | Electrical Computations | 3 |

Second Semester

| | | |
|---------|----------------------|---|
| ELC 114 | Commercial Wiring | 4 |
| ELC 117 | Motors and Controls | 4 |
| ELC 119 | NEC Calculations | 2 |
| ENG 110 | Freshman Composition | 3 |

Third Semester

| | | |
|---------|-------------------------------|---|
| ELC 128 | Introduction to PLC | 3 |
| ISC 121 | Environmental Health & Safety | 3 |
| | Major Elective | 3 |

Fourth Semester

| | | |
|---------|-------------------------------|---|
| ELC 115 | Industrial Wiring | 4 |
| HUM 115 | Critical Thinking | 3 |
| MAT 110 | Math Measurement and Literacy | 3 |
| | Major Elective | 3 |
| | Work-Based Learning Elective | 2 |

Fifth Semester

| | | |
|---------|--------------------------------------|---|
| COM 120 | Intro to Interpersonal Communication | 3 |
| ELC 127 | Software for Technicians | 2 |
| ELC 134 | Transformer Applications | 2 |
| PSY 118 | Interpersonal Psychology | 3 |
| | Major Elective | 3 |

Major Electives List I – Renewable Energy Track

(Select 9 hours from the following courses):

| | | |
|---------|-------------------------------------|---|
| ALT 120 | Renewable Energy Technologies | 3 |
| ELC 220 | Photovoltaic System Technology | 3 |
| ELC 221 | Advanced Photovoltaic System Design | 3 |

Major Electives List II - Business Track

(Select 9 hours from the following courses):

| | | |
|---------|--------------------------|---|
| BUS 110 | Introduction to Business | 3 |
| BUS 115 | Business Law I | 3 |
| BUS 139 | Entrepreneurship I | 3 |

Work-Based Learning Elective List

(Select 2 hours from the following courses):

| | | |
|---------|-----------------------|---|
| ELC 121 | Electrical Estimating | 2 |
| WBL 112 | Work-Based Learning I | 2 |

Graduation Requirements 67 Credit Hours

Electrical Systems Technology Diploma - D35130

The Electrical Systems Technology curriculum is designed to provide training for persons interested in the installation and maintenance of electrical systems found in residential, commercial, and industrial facilities.

Training, most of which is hands-on, will include such topics as AC/DC theory, basic wiring practices, programmable logic controllers, industrial motor controls, the National Electrical Code, and other subjects as local needs require.

Diploma graduates should qualify for a variety of jobs in the electrical field as an on-the-job trainee or apprentice assisting in the layout, installation, and maintenance of electrical/electronic systems.

Program Sequence

First Semester

| | | |
|---------|--------------------------|---|
| ELC 112 | DC/AC Electricity | 5 |
| ELC 113 | Residential Wiring | 4 |
| ELC 118 | National Electrical Code | 2 |
| ELC 126 | Electrical Computations | 3 |
| ENG 110 | Freshman Composition | 3 |

Second Semester

| | | |
|---------|----------------------------|---|
| BPR 130 | Print Reading-Construction | 3 |
| ELC 114 | Commercial Wiring | 4 |
| ELC 117 | Motors and Controls | 4 |
| ELC 119 | NEC Calculations | 2 |
| PSY 118 | Interpersonal Psychology | 3 |

Third Semester

| | | |
|---------|-------------------------------|---|
| ALT 120 | Renewable Energy Technologies | 3 |
| ELC 128 | Introduction to PLC | 3 |

Graduation Requirements 39 Credit Hours

Residential Wiring Certificate – C35130A

The Residential Wiring Certificate will introduce students to the National Electric Code and how it applies to residential applications. Students will learn how to install residential circuits, interpret the NEC, and read blueprints for residential installations.

Program Sequence

First Semester

| | | |
|---------|----------------------------|---|
| BPR 130 | Print Reading-Construction | 3 |
| ELC 112 | DC/AC Electricity | 5 |

Second Semester

| | | |
|---------|--------------------------|---|
| ELC 113 | Residential Wiring | 4 |
| ELC 118 | National Electrical Code | 2 |

Graduation Requirements 14 Credit Hours

APPLIED ENGINEERING & TECHNOLOGIES

Commercial Wiring Certificate – C35130B

The Commercial Wiring Certificate provides an understanding of the National Electric Code as well as how to install commercial wiring systems. Students will learn how to bend conduit, install raceways, and use the NEC to calculate wiring sizing for residential and commercial applications.

Program Sequence

First Semester

| | | |
|---------|---------------------|---|
| ELC 114 | Commercial Wiring | 4 |
| ELC 117 | Motors and Controls | 4 |

Second Semester

| | | |
|---------|-----------------------|---|
| ELC 119 | NEC Calculations | 2 |
| ELC 121 | Electrical Estimating | 2 |

Graduation Requirements 12 Credit Hours

Industrial Wiring Certificate – C35130C

The Industrial Wiring Certificate focuses on the NEC as it applies to industrial installations including hazardous locations installing rigid conduit. Students will also work with transformers and programmable logic controllers used in the industry.

Program Sequence

First Semester

| | | |
|---------|---------------------|---|
| ELC 115 | Industrial Wiring | 4 |
| ELC 128 | Introduction to PLC | 3 |

Second Semester

| | | |
|---------|-------------------------------|---|
| ELC 134 | Transformer Applications | 2 |
| ISC 121 | Environmental Health & Safety | 3 |

Graduation Requirements 12 Credit Hours

Wiring Methods Certificate – C35130D

The Wiring Methods Certificate is a mixture of both residential and commercial training that focuses on the wiring methods for each type of installation. Students will also learn how to interpret the National Electric Code as it applies to residential and commercial installations and calculations.

Program Sequence

First Semester

| | | |
|---------|--------------------|---|
| ELC 113 | Residential Wiring | 4 |
| ELC 114 | Commercial Wiring | 4 |

Second Semester

| | | |
|---------|--------------------------|---|
| ELC 118 | National Electrical Code | 2 |
| ELC 119 | NEC Calculations | 2 |

Graduation Requirements 12 Credit Hours

Renewable Energy Certificate – C35130E

The Renewable Energy Certificate provides knowledge of alternative and renewable energy that will not only help the environment but can provide power for entire communities, countries, and even the world. The focus of the certificate is hand-on Photovoltaic Systems training and how they can be applied to harness the energy from the sun in accordance with the NAMCEP standards.

Program Sequence

First Semester

| | | |
|---------|-------------------|---|
| ELC 112 | DC/AC Electricity | 5 |
|---------|-------------------|---|

Second Semester

| | | |
|---------|-------------------------------|---|
| ALT 120 | Renewable Energy Technologies | 3 |
|---------|-------------------------------|---|

Third Semester

| | | |
|---------|--------------------------------|---|
| ELC 220 | Photovoltaic System Technology | 3 |
|---------|--------------------------------|---|

Fourth Semester

| | | |
|---------|-------------------------------------|---|
| ELC 221 | Advanced Photovoltaic System Design | 3 |
|---------|-------------------------------------|---|

Graduation Requirements 14 Credit Hours