

# Electrical Technology



The Electrical Technology Associate of Applied Science degree prepares students for rewarding careers as Electrical Technicians in high-demand industries such as chemical processing, manufacturing, construction, power generation, renewable energy, automotive, and residential services.

Graduates are equipped for entry-level positions in various settings, including chemical plants, refineries, HVAC systems, factories, construction sites, commercial buildings, residential properties, and outdoor environments. These roles often offer competitive pay, with average wages ranging from \$50 to \$60 per hour.

Students develop the technical skills and knowledge required to succeed as electricians and instrumentation technicians through advanced simulation equipment, hands-on training in applied technology, and essential academic coursework. The program emphasizes problem-solving and troubleshooting abilities, attention to detail, a strong commitment to safety protocols, and the capacity to perform effectively in fast-paced, high-pressure environments. Communication and teamwork are also integral to professionals' success in this field.

To learn more about related careers, visit the [Technical Studies Division](#).

## What Will I Learn?

Upon successful completion of the Electrical Technology Degree program, graduates will be able to:

### Electrical Systems

- Understanding AC/DC systems, transformers, circuit breakers, and motor controls.

## **Blueprint Reading**

- Proficiency in interpreting electrical schematics, wiring diagrams, and layout drawings.

## **Control Systems**

- Knowledge of Programmable Logic Controllers (PLCs), relay logic, and automation systems.

## **Electrical Code Compliance**

- Familiarity with the National Electrical Code (NEC) and other industry standards.

## **Tools and Equipment**

- Expertise in using hand tools, power tools, and specialized diagnostic instruments.

## [View Program Learning Outcomes](#)

## **"What Can I Do With This Course of Study?"**

Opportunities in the electrical field are increasing. As technology advances, the demand for qualified industrial electricians also increases.

Electricians often work for large industrial plants, public utilities, government agencies, electrical contractors, building contractors, and construction companies. Hospitals, school districts, and department store chains often employ electricians.

Electricians include the following job duties:

### **Installation and Setup**

- Install and configure electrical systems and equipment according to blueprints, technical specifications, and safety standards.
- Lay out, assemble, and wire electrical panels and circuits for power distribution and control.

### **Maintenance and Repair**

- Perform preventive maintenance to ensure electrical systems operate reliably and efficiently.
- Diagnose and repair electrical issues, including faulty wiring, breakers, and motors.

### **Testing and Troubleshooting**

- Use diagnostic tools such as multimeters, ammeters, and oscilloscopes to identify electrical problems.
- Troubleshoot complex electrical systems, including automation controls, PLCs, and variable frequency drives (VFDs).

### **Safety Compliance**

- Ensure all work meets National Electrical Code (NEC) standards and OSHA regulations.
- Implement lockout/tagout (LOTO) procedures and other safety protocols during electrical work.

### Documentation

- Record maintenance activities, repairs, and modifications made to electrical systems.
- Update electrical schematics and blueprints to reflect changes.

## Electrical Technology (AAS) Degree Plan

**Foundations: These are the courses students need in order to progress in their career/college pathway, as they either provide a certificate or lay the groundwork for moving to the next set of courses.**

Course	Course Title	Counts Toward Certificate
ELPT 1325	National Electrical Code I	IE1, EC1, EW11 *The EC1 and EW11 certificates require courses not included in the degree.
ELPT 1411	Basic Electrical Theory	EIA2 *The EIA2 certificate requires courses not included in the degree.
TECM 1341	Technical Algebra	
ELPT 2301	Journeyman Electrical Exam Review	IE1, EIA2
ENGL 1301	English Composition 1	

**Knowledge Building: These courses further the students' knowledge in the area of study and increase their preparation for the degree completion.**

Course	Course Title	Counts Toward Certificate
TECM 1349	Technical Math Applications	EIA2
PHYS 1407	Conceptual Physics II	EIA2
Creative Arts/Language Philosophy	Recommended: ENGL 2351, HUMA 2319, HIST 2381, ARCH 1311 Other options: any Creative Arts/LPC core course	
ELPT 1455	Electronic Applications	IE1, EIA2; EC1, EW11
ELPT 2405	Motors and Transformers	IE1

ELPT 2319	Programmable Logic Controllers I	IE1, EIA2
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**Completion: These are the courses the student needs in order to complete the degree plan and prepare to enter the workforce.**

Course	Course Title	Counts Toward Certificate
SPCH 1315	Principles of Public Speaking	
SBS/GOVT/HIST	Recommended:# HIST 2301, GOVT 2306, ECON 2301 Other options: any SBS/HIST/GOVT core course	
ELPT 2331	AC/DC Drives	IE1, EIA2,
ELPT 1441	Motor Controls	IE1, EIA2
ELPT 2355	Programmable Logic Controllers II	IE1
Electives: Chose two from ELPT 1321 or ELPT 2325 or ELPT 2380	ELPT 1321 - Introduction to Electrical Safety and Tools (applies to EC1 & EWI1 certificates) or ELPT 2325 - National Electrical Code II or ELPT 2380 – Cooperative Education: Electrical and power Transmission Installation	EC1, EWI1 (ELPT 1321) IE1 (choose one elective)

## Electrical Construction - EC1, Certificate of Completion

**Foundations: These are the courses students need in order to progress in their career/college pathway, as they either provide a certificate or lay the groundwork for moving to the next set of courses.**

Course	Course Title	Counts Toward Certificate
ELPT 1321	Introduction to Electrical Safety and Tools	EC1, EWI1
ELPT 1315	Electrical Calculations I	EC1
ELPT 1325	National Electrical Code I	EC1, EWI1

**Knowledge Building: These courses further the students' knowledge in the area of study and increase their preparation for the degree completion.**

Course	Course Title	Counts Toward Certificate
ELPT 1329	Residential Wiring	EC1

ELPT 1445                      Commercial Wiring                      EC1, EW11

**Completion: These are the courses the student needs in order to complete the degree plan and prepare to enter the workforce.**

Course	Course Title	Counts Toward Certificate
ELPT 1457	Industrial Wiring	EC1
ELPT 2325	National Electrical Code II	EC1
ELPT 1451	Electrical Machines	EC1

### **Electrical Technology - IE1, Certificate of Completion**

**Foundations: These are the courses students need in order to progress in their career/college pathway, as they either provide a certificate or lay the groundwork for moving to the next set of courses.**

Course	Course Title	Counts Toward Certificate
ELPT 1325	National Electrical Code I	IE1
ELPT 2301	Journeyman Electrical Exam Review	IE1

**Knowledge Building: These courses further the students' knowledge in the area of study and increase their preparation for the degree completion.**

Course	Course Title	Counts Toward
ELPT 1455	Electronic Applications	IE1
ELPT 2405	Motors and Transformers	IE1
ELPT 2319	Programmable Logic Controllers I	IE1

**Completion: These are the courses the student needs in order to complete the degree plan and prepare to enter the workforce.**

Course	Course Title	Counts Toward Certificate
ELPT 2331	AC/DC Drives	IE1
ELPT 1441	Motor Controls	IE1
ELPT 2355	Programmable Logic Controllers II	IE1
Elective: Choose one from ELPT 1321 or ELPT 2325 or ELPT 2380	ELPT 1321 - Introduction to Electrical Safety and Tools (applies to EC1 & EW11 certificates) or ELPT 2325 - National Electrical Code II or ELPT 2380 – Cooperative Education: Electrical and power Transmission Installation	IE1 (choose one elective)

## Electrical Instrumentation and Analytical II - EIA1, Certificate of Completion

**Foundations:** These are the courses students need in order to progress in their career/college pathway, as they either provide a certificate or lay the groundwork for moving to the next set of courses.

Course	Course Title	Counts Toward Certificate
CTEC 1401	Applied Petrochemical Tech	EIA2
ELPT 1411	Basic Electrical Theory	EIA2
INTC 1348	Analytical Instrumentation	EIA2
ELPT 2301	Journeyman Electrical Exam Review	EIA2

**Knowledge Building:** These courses further the students' knowledge in the area of study and increase their preparation for the degree completion.

Course	Course Title	Counts Toward Certificate
PHYS 1407	Conceptual Physics II	EIA2
INTC 1456	Instrumentation Calibration	EIA2
TECM 1341	Technical Algebra	EIA2
ELPT 2319	Programmable Logic Controllers I	EIA2
ELPT 1455	Electronic Applications	EIA2

**Completion:** These are the courses the student needs in order to complete the degree plan and prepare to enter the workforce.

Course	Course Title	Counts Toward Certificate
ELPT 1441	Motor Control	EIA2
ELPT 2331	AC/DC Drives	EIA2
INTC 1441	Principles of Automatic Control	EIA2
CHEM 1405	Introductory Chemistry CAAC change needed: Make the math requirement to TECM 1341)	EIA2

## Wiring Installation EW11

**Foundations:** These are the courses students need in order to progress in their career/college pathway, as they either provide a certificate or lay the groundwork for moving to the next set of courses.

Course	Course Title	Counts Toward Certificate
ELPT 1321	Introduction to Electrical Safety and Tools	EWI1
ELPT 1325	National Electrical Code I	EWI1

**Knowledge Building: These courses further the students' knowledge in the area of study and increase their preparation for the degree completion.**

Course	Course Title	Counts Toward Certificate
ELPT 1445	Commercial Wiring	EWI1

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## Contact Info

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