

# Grayson College Course Catalog

## Overview

Electricians are needed to install and maintain electrical power, communications, lighting, and control systems in homes, businesses, and factories. They work indoors and outdoors, in nearly every type of facility.

Almost all electricians work full time, which may include evenings and weekends. Although the work is not as dangerous as other construction occupations, potential injuries include electrical shocks and burns, cuts, and falls.

According to the Occupational Outlook Handbook, most electricians learn through an apprenticeship, and many start out by attending a technical school. Most states require electricians to be licensed. The median annual wage for electricians was \$51,880 in May 2015.

Employment of electricians is projected to grow 14 percent from 2014 to 2024, faster than the average for all occupations. As homes and businesses require more wiring, electricians will be needed to install the necessary components. Electricians with the widest variety of skills should have the best job opportunities.

The Grayson College Electrical Technology program is located on the South Campus in Van Alstyne and offers two levels of certificates leading to an AAS degree.

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## Course Requirements

The Associate of Applied Science Degree and the Certificate require a High School Diploma or equivalent. The Associate of Applied Science Degree requires TSI requirements have been met.

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## Capstone Experience

Graduation with a Certificate or an Associate of Applied Science Degree in Electrical Technology requires successful completion of a capstone course.

## AAS Degree Requirements

### Associate of Applied Science - Electrical Technology

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Subject	Semester Hours
<a href="#">ELPT 1221</a> (Intro to Electrical Safety and Tools)	2
<a href="#">ELPT 2337</a> (Electrical Planning and Estimating)	3
<a href="#">ELPT 1311</a> (Basic Electrical Theory)	3
<a href="#">ELTN 1391</a> (Special Topics in Electrician)	3
<a href="#">DFTG 1325</a> (Blueprint Reading)	3
<a href="#">ELPT 2305</a> (Motors and Transformers)	3
<a href="#">ELPT 1325</a> (National Electric Code I)	3
<a href="#">ELPT 1329</a> (Residential Wiring)	3
<a href="#">ELPT 2164</a> (Practicum Electrical and Power Transmission)	1
<a href="#">ELTN 1343</a> (Electrical Troubleshooting)	3
<a href="#">ELPT 1341</a> (Motor Control)	3
<a href="#">ELPT 2343</a> (Electrical Systems Design)	3
<a href="#">ELTN 1291</a> (Special Topics in Electrical and Power Transmission Installer, General)	2
<a href="#">ELPT 1345</a> (Commercial Wiring)	3
<a href="#">ELPT 2165</a> (Practicum-Electrical and Power Transmission)	1
<a href="#">ELPT 2319</a> Programmable Logic Controllers I)	3
<a href="#">ENGL 1301</a> (Comp I)	3
<a href="#">ITSC 1309</a> (Integrated Software Apps)	3
<a href="#">MATH 1332</a> (Contemporary Mathematics)	3
*Social & Behavioral Science Core	3
*Lang, Phil, Culture/Creative Arts Core	3
<a href="#">SPCH 1311</a> (Intro to Spch Comm)	3

\*Please review your Student Planner or contact your Student Success Coach/Faculty Mentor to review which courses may be used to fill this degree requirement.

## Certificate Degree Requirements

### Residential Electrical Technology - Certificate

Subject	Semester Hours
<a href="#">ELPT 1221</a> (Intro to Electrical Safety and Tools)	2
<a href="#">ELPT 2164</a> (Practicum Electrical and Power Transmission)	1
<a href="#">ELPT 1311</a> (Basic Electrical Theory)	3
<a href="#">ELTN 1391</a> (Special Topics in Electrician and Power Transmission)	3
<a href="#">DFTG 1325</a> (Blueprint Reading)	3
<a href="#">ELPT 2337</a> (Electrical Planning and Estimating)	3
<a href="#">ELPT 1325</a> (National Electric Code I)	3
<a href="#">ELPT 1329</a> (Residential Wiring)	3
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### Commercial Electrical Technology - Certificate

Subject	Semester Hours
<a href="#">ELPT 1221</a> (Intro to Electrical Safety and Tools)	2
<a href="#">ELPT 2337</a> (Electrical Planning and Estimating)	3
<a href="#">ELPT 1311</a> (Basic Electrical Theory)	3
<a href="#">ELTN 1391</a> (Special Topics in Electrician and Power Transmission)	3
<a href="#">DFTG 1325</a> (Blueprint Reading)	3
<a href="#">ELPT 2305</a> (Motors and Transformers)	3
<a href="#">ELPT 1325</a> (National Electric Code I)	3
<a href="#">ELPT 1329</a> (Residential Wiring)	3
<a href="#">ELPT 2164</a> (Practicum Electrical and Power Transmission I)	1
<a href="#">ELTN 1343</a> (Electrical Troubleshooting)	3
<a href="#">ELPT 2343</a> (Electrical System Design)	3
<a href="#">ELPT 1341</a> (Motor Control)	3
<a href="#">ELPT 1345</a> (Commercial Wiring)	3
<a href="#">ELPT 1291</a> (Special Topics MLT)	2
<a href="#">ELPT 2319</a> (Programmable Logic Controllers I)	3
<a href="#">ELPT 2165</a> (Practicum-Electrical and Power Transmission II)	1
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### DFTG 1325 - Blueprint Reading and Sketching

An introduction to reading and interpreting working drawings for fabrication processes and associated trades. Use of sketching techniques to create pictorial and multiple-view drawings. Interpret working drawings including dimensions, notes, symbols, sections, and auxiliary views; and sketch pictorials and multi-view drawings.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 3.0

## **ELPT 1221 - Introduction to Electrical Safety and Tools**

This course covers safety rules and regulations. Includes the selection, inspection, use and maintenance of common tools for electricians.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 2.0

**Lab hours:** 1.0

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## **ELPT 1311 - Basic Electrical Theory**

This course covers the basic theory and practice of electrical circuits. It includes calculations as applied to alternating and direct current, and covers electrical terminology, circuit analysis and mathematical formulas as applied to direct and alternating current circuits.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 3.0

**Lab hours:** 2.0

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## **ELPT 1325 - National Electric Code I**

This is an introductory study of the National Electric Code (NEC) for those employed in the field requiring knowledge of the Code. Emphasis will be on wiring design, protection, methods, and materials; and equipment for general use, and basic calculations.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 3.0

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## **ELPT 1329 - Residential Wiring**

Wiring methods for single family and multi-family dwellings. Includes load calculations, service entrance sizing, proper grounding techniques, and associated safety procedures.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 4.0

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## **ELPT 1341 - Motor Control**

Operating principles of solid-state and conventional controls along with their practical applications. Includes braking, jogging, plugging, safety interlocks, wiring, and schematic diagram interpretations. Identify practical applications of jogging and plugging; describe the types of motor braking and their operating principles; explain different starting methods for large motors; and demonstrate proper troubleshooting methods on circuits using wiring and schematic diagrams

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 2.0

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## **ELPT 1345 - Commercial Wiring**

Commercial wiring methods. Includes overcurrent protection, raceway panel board installation, proper grounding techniques, and associated safety procedures. Interpret electrical blueprints/drawings; compute the circuit sizes and overcurrent protection needed for the installation of branch circuits, feeders, and service entrance conductors; explain the proper installation of wiring devices according to the National Electrical Code (NEC) and local electrical codes; demonstrate grounding methods; identify commercial wiring methods including conduit bending; and demonstrate proper safety procedures.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

Lab hours: 4.0

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### **ELPT 2164 - Practicum Electrical & Power Transmission**

Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student

**Grade Basis:** L

**Credit hours:** 1.0

**Restrictions:**

- Requires 8 lab hours
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### **ELPT 2165 - Practicum-Electrical and Power Transmission**

Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.

**Grade Basis:** L

**Credit hours:** 1.0

**Restrictions:**

- Requires 8 lab hours
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### **ELPT 2305 - Motors and Transformers.**

This course focuses on the operation of single- and three-phase motors and transformers. It includes transformer banking, power factor correction, and protective devices. Also included are lessons on three-phase power concepts, transformer and motor connections, transformer and motor metering, and transformer and motor troubleshooting theory

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 1.0

**Lab hours:** 3.0

**Prerequisites:**

- [ELPT 1311](#) - Basic Electrical Theory
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### **ELPT 2319 - Programmable Logic Controllers I**

Fundamental concepts of programmable logic controllers, principles of operation, and numbering systems as applied to electrical controls.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 2.0

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### **ELPT 2337 - Electrical Planning and Estimating**

Planning and estimating for residential, commercial, and industrial wiring systems. Includes a variety of electrical techniques. List estimating procedures; formulate material and labor costs; identify types of bids; calculate cost adjustments and job costs; and demonstrate the use of estimating forms.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 3.0

**Lab hours:** 1.0

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## **ELPT 2343 - Electrical Systems Design**

This is a course in electrical design of commercial and/or industrial projects, including building layout, types of equipment, placement, sizing of electrical equipment, and all electrical calculations according to the requirements of the National Electrical Code (NEC).

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 3.0

**Restrictions:**

- Prerequisite: ELPT 2325 or approval of department chair.
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## **ELTN 1343 - Electrical Troubleshooting**

Maintenance, operation, troubleshooting, and repair of circuits of various residential, commercial, and industrial electrical systems.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 2.0

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## **ELTN 1391 - Special Topics in Electrician and Power Transmission**

Topics address recently identified current events, skills, knowledge, and-or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. The course was designed to be repeated multiple times to improve student proficiency.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 2.0

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## **ITSC 1309 - Integrated Software Applications I**

Introduction to business productivity software suites using word processing, spreadsheets, databases, and/or presentation software. Use word processing, spreadsheet, database, and/or presentation software; and integrate applications to produce documents.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 3.0

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## **ELPT 1291 - Special Topics in Electrical and Power Transmission**

Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 2.0

**Lab hours:** 1.0

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**Grayson College**

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