

# TDCJ ELECTRICAL AND POWER TRANSMISSION

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- Electrical and Power Transmission (Electrician training) AAS (<https://coursecatalog.tvcc.edu/tdcj-handbook/programs/electrical-power-transmission/electrical-power-transmission-aas/>)
- Electrical and Power Transmission (Electrician training) Certificate (<https://coursecatalog.tvcc.edu/tdcj-handbook/programs/electrical-power-transmission/electrical-power-transmission-electrician-training-certificate/>)

## Electrical and Power Transmission Program Information

**Note: Criminal history may disqualify individuals from obtaining or maintaining any certifications.**

### TEXAS LAW:

- restricts the issuance of occupational licenses based on a license applicant's criminal history; and
- authorizes the Texas Department of Licensing and Regulation (TDLR), in some cases, to consider a person convicted, even though the person was only on probation or community supervision without a conviction.

Individuals who have been convicted of an offense or placed on probation might not be eligible for an occupational license issued by TDLR even after completing an educational or training program.

TDLR's criminal history guidelines are available at [www.tdlr.texas.gov/crimconvict.htm](http://www.tdlr.texas.gov/crimconvict.htm) and include restrictions or guidelines TDLR uses to determine eligibility for an occupational license; and individuals have the right to request a criminal history evaluation letter from TDLR, which is explained in more detail at [www.tdlr/texas.gov/crimhistoryeval.htm](http://www.tdlr/texas.gov/crimhistoryeval.htm).

### ELPT-1215. Electric Calculations I. (2 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Introduction to mathematical applications utilized to solve problems in the electrical field. Topics include fractions, decimals, percentages, simple equations, ratio and proportion, unit conversions, and applied geometry.

### ELPT-1221. Introduction to Electrical Safety and Tools. (2 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Safety rules and regulations. Includes the selection, inspection, use, and maintenance of common tools for electricians.

**ELPT-1225. National Electrical Code I. (2 Credits)**

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. An introductory study of the National Electric Code (NEC) for those employed in fields requiring knowledge of the Code. Emphasis on wiring design, protection, methods and materials; equipment for general use and basic calculations.

**ELPT-1411. Basic Electrical Theory. (4 Credits)**

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Basic theory and practice of electrical circuits. Includes calculations as applied to alternating and direct current.

**ELPT-1429. Residential Wiring. (4 Credits)**

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Wiring methods for single family and multi-family dwellings. Includes load calculations, service entrance sizing, proper grounding techniques, and associated safety procedures.

**ELPT-1445. Commercial Wiring. (4 Credits)**

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Commercial wiring methods. Includes overcurrent protection, raceway panel board installation, proper grounding techniques and associated safety procedures.

**ELPT-2239. Electrical Power Distribution. (2 Credits)**

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Design operation, and technical details of modern power distribution systems including generating equipment, transmission lines, plant distribution, and protective devices. Includes calculations of fault current, system load analysis, rated, and power economics.

**HYDR-1405. Basic Hydraulics. (4 Credits)**

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Fundamentals of hydraulics including safety types of hydraulic pumps, cylinders, valves, motors, and related systems. Introduction to hydraulic schematic symbols as related to components.

**What Electricians Do**

Electricians install, maintain, and repair electrical power, communications, lighting, and control systems.

**SUMMARY**

- Electrician
- 2020 Median Pay: \$56,900 per year or \$27.36 per hour
- Typical Entry-Level Education: High school diploma or equivalent
- Work Experience in Related Occupation: None
- On-the-job training: Apprenticeship
- Number of Jobs, 2020: 729,600
- Job Outlook, 2020-30: 9% (as fast as average)
- Employment Change: 2020-30; 66,100

## Work Environment

Almost all electricians work full time. Work schedules may include evenings and weekends. Overtime is common.

## How to Become an Electrician

Most electricians learn through an apprenticeship, but some start by attending a technical school. Most states require electricians to be licensed.

## Pay

The median annual wage for electricians was \$56,900 in May 2020.

## Job Outlook

The employment of electricians is projected to grow 9% from 2020 to 2030 as fast as the average for all occupations. Homes and businesses continue to require wiring, and electricians will be needed to install the necessary components.

## State & Area Data

Explore resources for employment and wages by state and area for electricians.

## Similar Occupations

Compare the job duties, education, job growth, and pay of electricians with similar occupations.

## More Information, Including Links to O\*NET

Learn more about electricians by visiting additional resources, including O\*NET, a source of workers and occupations' key characteristics.

## SUGGESTED CITATION:

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Electricians, on the Internet at <https://www.bls.gov/ooh/construction-and-extraction/electricians.htm> (visited March 23, 2021).

Some careers in this field will require a bachelor's degree.

- TVCC's AA degrees are fully transferable to public universities in Texas. See an academic advisor for more information on this transfer opportunity.
- Many of TVCC's AAS degrees lead to an online Bachelor of Applied Arts and Sciences (BAAS) degree with participating universities. See an academic advisor for more information on this transfer opportunity.