

Architecture and Construction Career Cluster

The Architecture and Construction career cluster focuses on designing, planning, managing, building, and maintaining the built environment. This career cluster includes occupations ranging from architect, carpenter, and construction manager to electrician, plumber and heating, air conditioning and refrigeration technician.

Statewide Program of Study: Electrical and Instrumentation

The Electrical program of study focuses on occupational and educational opportunities associated with installing, maintaining, and repairing electrical wiring, equipment, and fixtures. The program of study also addresses installing and repairing telecommunications cable including fiber optics.

Offered to: LMHS and TCHS at the **Industrial Trades Center**



Secondary Courses for High School Credit

Level 1 •	Principles of Construction
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Electrical Technology I Level 2

Occupational Safety & Environmental Technology

Electrical Technology II (Required) Level 3

> **Applied Mathematics for Technical Professionals** (Recommended)

Practicum in Construction Technology Level 4

Aligned Advanced Academic Courses

Dual Credit Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	 company to develop installation skills Join a pre-apprenticeship program that involves determining if electrical wiring is up to code Interview an electrician about their training and education

Expanded Learning Opportunities

Participate in Houston Livestock Show and Rodeo ICC

Participate in an internship with an electrical

Participate in trade competitions

Aligned Industry-Based Certifications

- **NCCER Core**
- NCCER Electrical Level I
- NCCER Instrumentation I





Example Postsecondary Opportunities

Apprenticeships

Electrician

Associate Degrees

- **Electrical and Power Transmission Installation**
- **Electrical Power and Controls**
- **Electromechanical Technology**

Bachelor's Degrees

- **Construction Engineering**
- Electrical, Electronic, and Communications
- **Engineering Electrical Engineering**

Master's, Doctoral, and Professional Degrees

- **Construction Engineering**
- **Construction Management**

Additional Stackable IBCs/License

- Journeyman Electrician
- Master Electrician



Example Aligned Occupations

Electricians Helpers

Median Wage: \$38,140 Annual Openings: 1,632 10-Year Growth: 20%

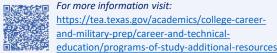
Electricians

Median Wage: \$54,769 Annual Openings: 9,221 10-Year Growth: 27%

Construction Managers

Median Wage: \$95,072 Annual Openings: 6,325 10-Year Growth: 24%

Data Source: Texas Wages, Texas Workforce Commission, Retrieved 3/8/2024 For more information visit:



https://tea.texas.gov/academics/college-careerand-military-prep/career-and-technical-

7847



Architecture and Construction Career Cluster

Statewide Program of Study: Electrical and Instrumentation

Course Information

Course **Prerequisites | Corequisites Local Course #** Prerequisites: None **Principles of Construction** 7842 Corequisites: None 13004220 (1 credit) Required: Drug testing is mandatory for this course.

Principles of Construction is intended to provide an introduction and lay a solid foundation for those students entering the construction or craft skilled areas. The course provides a strong knowledge of construction safety, construction mathematics, and common hand and power tools. This course also provides communication and occupation skills to assist the student in obtaining and maintaining employment. Students will need to purchase appropriate boots for this course.

Course	Prerequisites Corequisites	Local Course #
Electrical Technology I 13005600 (1 credit)	Prerequisites: None Corequisites: Occupational Safety Required: Drug testing is mandatory for this course.	7771

In Electrical Technology, students gain knowledge and skills specific to those needed to enter the work force as an electrician or building maintenance supervisor or prepare for a postsecondary degree in construction. Students acquire knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, and the reading of electrical drawings, schematics, and specifications. Students will need to purchase appropriate boots for this course.

Occupational Safety & Prerequisites: None 7868 **Environmental Technology** Corequisites: Electrical Technology I Required: Drug testing is mandatory for this course. N1303680 (1 credit)

Students will investigate the field of Occupational Safety and Health Administration and Environmental Technology, which is charged with the tasks of ensuring that business and industry provide a safe workplace, free from hazards and bringing about a reduction in the occurrence of job-related injuries and fatalities. Students will need to purchase appropriate boots for this course.

Course	Prerequisites Corequisites	Local Course #
Electrical Technology II 13005700 (2 credits)	Prerequisites: Electrical Technology I Corequisites: None Recommended Corequisite: Applied Mathematics for Technical Professionals Required: Drug testing is mandatory for this course.	7844

In Advanced Electrical Technology, students gain advanced knowledge and skills specific to those needed to enter the work force as an electrician or building maintenance technician or supervisor or prepare for a postsecondary degree in construction. Students acquire knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, alternating current and direct current motors, conductor installation, installation of

electrical services, and electric lighting installation. Students will need to purchase appropriate boots for this course. Prerequisites: Electrical Technology I **Applied Mathematics for Technical** 7925 Corequisites: None **Professionals**

Recommended Corequisite: Construction Technology II

Applied Mathematics for Technical Professionals uses problem-solving situations, hands-on activities, and technology to extend mathematical thinking and engage student reasoning. Situations relating to technical applications provide students opportunities to make connections with mathematics and the workplace. In addition, students will learn the skills necessary to communicate using mathematics. Hands-on activities will allow students to model, explore, and develop abstract concepts applicable to technical

careers

Course	Prerequisites Corequisites	Local Course #
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Practicum in Construction Technology

13005250 (2 credits)

12701410 (1 credit)

Prerequisites: Electrical Technology II

Corequisites: None

Required: Drug testing is mandatory for

this course.

Practicum in Construction Technology is an occupationally specific course designed to provide classroom technical instruction or on-the-job training experiences. Safety and career opportunities are included in addition to work ethics and job-related study in the classroom. Students will need to purchase appropriate boots for this course.

