



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

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| Level 1 | <ul style="list-style-type: none"> Principles of Construction |
| Level 2 | <ul style="list-style-type: none"> Electrical Technology I Occupational Safety & Environmental Technology |
| Level 3 | <ul style="list-style-type: none"> Electrical Technology II (Required) Applied Mathematics for Technical Professionals (Recommended) |
| Level 4 | <ul style="list-style-type: none"> Practicum in Construction Technology |

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

- Participate in an internship with an electrical 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 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: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



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Statewide Program of Study: *Electrical and Instrumentation*

Course Information

Level 1

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

Level 2

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

Level 3

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
<p>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.</p>		
Applied Mathematics for Technical Professionals 12701410 (1 credit)	Prerequisites: Electrical Technology I Corequisites: None Recommended Corequisite: Construction Technology II	7925
<p>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.</p>		

Level 4

Course	Prerequisites Corequisites	Local Course #
Practicum in Construction Technology 13005250 (2 credits)	Prerequisites: Electrical Technology II Corequisites: None Required: Drug testing is mandatory for this course.	7847
<p>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.</p>		