LEANDER ISD
CAREER AND TECHNICAL EDUCATION

ARCHITECTURE & CONSTRUCTION

BUSINESS AND INDUSTRY

ELECTRICAL

PROGRAM OF STUDY

The Electrical program of study explores the occupations and educational opportunities associated with installing, maintaining, and repairing electrical wiring, equipment, and fixtures. This program of study may also include exploration into installing and repairing telecommunications cable including fiber optics.

INDUSTRY-BASED CERTIFICATION OPPORTUNITIES

Occupational Health and Safety Admin (OSHA) General 30-Hour; National Center for Construction Education (NCCER) - Core, Electrical I and II; Electrical Apprentice License Level I - Texas Department of Licensing and Regulation (TDLR)

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Electrical Linemen	$54,184	1,314	28%
Electricians	$44,013	8,460	21%
Electrical and Electronics Installers	$37,544	245	19%
Security and Fire Alarm Installers	$43,638	1,112	22%
Telecommunication Line Installers and Repairers	$49,150	1,228	10%

Texas Data: Collected by TEA October 2019

RECOMMENDED COURSE SEQUENCE

1 LEVEL — Electrical Technology I

2 LEVEL — Electrical Technology II

3 LEVEL — Practicum in Construction Technology I: Electrical

4 LEVEL — Practicum in Construction Technology II: Electrical

NOTE: See reverse for additional course sequence options and endorsement requirements. Course descriptions and details can be found in the course catalog.

WORK-BASED LEARNING EXPERIENCES

Industry Guest Speakers; Field Trips; Industry Mentors; Community Project Opportunities; Internships

CAREER AND TECHNICAL STUDENT ORGANIZATIONS

SkillsUSA; National Technical Honor Society (NTHS)

The Architecture and Construction Career Cluster® focuses on designing, planning, managing, building, and maintaining the built environment. Principles of Architecture provides an overview to the various fields of architecture, interior design, and construction management.

Non-Discrimination Statement

It is the policy of Leander ISD not to discriminate on the basis of race, color, national origin, sex or handicap in its Career and Technology Education Programs, services, or activities. Leander ISD will take steps to assure that lack of English language skills will not be a barrier to admission and participation in all educational and vocational programs.
Es norma de Leander ISD de no discriminar por motivos de raza, color, origen nacional, sexo o impedimento, en sus programas, servicios o actividades vocacionales. Leander ISD tomará las medidas necesarias para asegurar que la falta de habilidad en el uso de la lengua inglés no sea un obstáculo para la admisión o participación en todos los programas educativos y vocacionales.

ELECTRICAL

BUSINESS AND INDUSTRY

A student may earn a Business and Industry endorsement by completing foundation and general endorsement requirements. Endorsement course options for the Electrical program of study are listed below.

4 CREDITS REQUIRED

Required Courses:

- Electrical Technology I
- Electrical Technology II

Choose additional credits from the following:

- Practicum in Electrical Construction Technology I
- Practicum in Electrical Construction Technology II
- Principles of Construction (CPHS & GHS)
- Architectural Design I
- Agricultural Mechanics and Metal Technologies
- Introduction to Engineering Design
- Professional Communications or Entrepreneurship
- Career Preparation
- Project-Based Research

NOTE: Students who complete the Electrical Program of Study requirements are eligible to earn a STEM endorsement by also completing Algebra II, Chemistry and Physics.

INDUSTRY-BASED CERTIFICATION OPPORTUNITIES

OSHA 30 General industry covers standards and regulations that OSHA has set in place to make sure all employees function in a safe work environment. Topics include: OSHA inspection procedures, safety and health programs, record keeping, hazard communication, emergency action plans, fire prevention/detection/protection, electrical, combustible liquids, lockout/tagout, machine guarding, surfaces, welding and cutting, material handling, permit requirements, personal protective equipment, industry hygiene, bloodborne pathogens, hand/power tool safety.

National Center for Construction Education (NCCER) Core certification shows mastery in introductory craft skills such as basic safety, construction math, hand tools, power tools, construction drawings, basic rigging, communication skills, employability skills, and material handling.

The NCCER Level I Electrical exam covers the topics such as an orientation to the electrical trade, electrical safety, introduction to electrical circuits, electrical theory, introduction to the national electrical code, device boxes, hand bending, raceways and fittings, conductors and cables, basic electrical construction drawings, residential electrical services, and electrical test equipment.

The NCCER Level II Electrical exam covers the topics such as alternating current, motors: theory and application, electric lighting, conduit bending, pull and junction boxes, conductor installations, cable tray, conductor terminations and splices, grounding and bonding, circuit breakers and fuses, control systems and fundamental concepts.

The Independent Electrical Contractors (IEC) Apprentice Training Programs combine the on-the-job training and formal related technical instruction you need to prepare you for this high-demand field. Each year, apprentices complete at least 144 hours of classroom training per year with lectures, demonstrations, labs and homework, and a comprehensive final that must be passed prior to graduating to the next training level. The IEC will allow high school students who complete high school electrical trades classes using the IEC curriculum to test out of the first year of our apprenticeship program. The students will be issued a certificate of completion and then after an evaluation be enrolled in the 2nd year of the training program of our four year electrical apprenticeship program. During the first year, apprentices will learn about First Aid, CPR, AED and jobsite safety. Additionally, electrical fundamentals and basic electrical theory, essential national electrical code rules and wiring methods will be covered. Finally, care and use of hand and power operated tools, conduit bending and other mechanical skills will be explored.