

Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Statewide Program of Study: *Electrical Engineering*

The Electrical Engineering program of study focuses on occupational and educational opportunities associated with the design, development, testing, and supervision of electrical equipment and systems. Students will design, test, and evaluate projects related to electrical motors, radar, navigation systems, and communication systems. This program of study includes applying scientific, mathematical, and empirical evidence to solve problems in electrical systems associated with instruments, facilities, components, and equipment.

Secondary Courses for High School Credit

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- Level 1**
- **Introduction to Engineering Design (PLTW) (1 credit)**
 - 1835CT; 9-12 grade
 - 1 semester at Ben Barber
 - **Weighted Credit**
 - **Autodesk Certified User: Fusion 360 Certification Possible**
- Level 2**
- **Robotics I (1 credit)**
 - 1856CT; 9-12 grade
 - 1 semester at Ben Barber
 - **AC/DC Electronics (1 credit)**
 - 1841CT; 10-12 grade
 - 1 semester at Ben Barber
- Level 3**
- **Robotics II (1 credit)**
 - 1858CT; 10-12 grade
 - 1 semester at Ben Barber
 - **Math Credit**
 - *Prerequisite: Robotics I*
 - **Solid State Electronics (1 credit)**
 - 1843CT; 10-12 grade
 - 1 semester at Ben Barber
 - *Prerequisite: AC/DC Electronics*
 - **Principles of Engineering (PLTW) (1 credit)**
 - 1836CT; 10-12 grade
 - 1 semester at Ben Barber
 - **Weighted and Science Credit**
 - *Prerequisite: Introduction to Engineering AND Algebra I AND Biology AND Geometry (can be concurrent enrollment)*
 - **Computer Integrated Manufacturing (PLTW) (1 credit)**
 - 1838CT; 10-12 grade
 - 1 semester at Ben Barber
 - **Weighted**
 - *Prerequisite: Introduction to Engineering*
 - **Engineering Design and Development (PLTW) (1 credit)**
 - 1845CT; 11-12 grade
 - 1 semester at Ben Barber
 - **Weighted**
 - *Prerequisite: Computer Integrated Manufacturing OR Aerospace Engineering*
- Level 4**
- **Practicum in Engineering (2 credits)**
 - 1857CA/CB; 12 grade
 - 2 semesters at Ben Barber
 - *Prerequisites: Students must complete a Level 1 or 2 course AND a Level 3 or 4 course to take Practicum in STEM; Selection Process*



Example Postsecondary Opportunities

Apprenticeship

- Electrical Technician Apprenticeship

Associate Degrees

- Electrical, Electronic, and Communications Engineering Technology/Technician
- Electromechanical/Electromechanical Engineering Technology/Technician

Bachelor's Degrees

- Electrical and Electronics Engineering
- Systems Engineering

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Bioengineering and Biomedical Engineering

Additional Stackable IBCs/License

- Professional Electrical Engineer (EE License)
- Electrical Apprenticeship Certificate Level 1 (520)



Example Aligned Occupations

Electrical and Electronic Engineering Technologists and Technicians

Median Wage: \$62,968
Annual Openings: 1,156
10-Year Growth: 14%

Electrical and Electronics Drafters

Median Wage: \$58,987
Annual Openings: 406
10-Year Growth: 16%

Electrical Engineers

Median Wage: \$102,534
Annual Openings: 1,271
10-Year Growth: 21%

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>