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.

Endorsement: Business & Industry or STEM Statewide Program of Study: Engineering Foundations

The Engineering Foundations program of study focuses on occupational and educational opportunities associated with a wide range of skills applied in the Engineering industry. Students will design, test, and evaluate projects related to engines, machines, and structures. This program of study incudes applying scientific, mathematical, and empirical evidence to solve problems through innovation, design, construction, operation, and maintenance of different engineering systems.

Secondary Courses for High School Credit

9th grade	❑ Principles of Applied Engineering (Level 1) ❑ Elective: Principles of Technology (Level 1)
10th grade	❑ Robotics I (Level 2)
11th grade	❑ Engineering Science (Level 3) **AND** ❑ Digital Electronics (Level 3)
12th grade	❑ Engineering Design and Presentation I (Level 3)

A CTE Completer is a student who completes three or more CTE courses for four or more credits including one Level 3 or 4 (advanced level) CTE course within a program of study will fulfill the requirements of a Business and Industry Endorsement.

Aligned Industry-Based Certifications

- Engineering Technology Foundations
- Pre-Engineering/Engineering Technology – Job Ready

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	• Intern at an engineering, robotics, or aerospace company. • Visit an engineering firm and shadow multiple types of engineers.
Expanded Learning Opportunities	• Participate in SkillsUSA or TSA • Join a local engineering association and attend meetings.

NAVIANCE ACCESS

All Killeen ISD students (7th – 12th graders) should login to their Naviance account through Clever.

Log into Naviance by clicking the Clever logo or link and use the College SuperMatch Tool to find colleges offering degree plans in this field.
https://clever.com/in/killeenisd

Example Postsecondary Opportunities

Apprenticeships
- Industrial Engineering Technician Apprenticeship

Associate Degrees
- Manufacturing Engineering Technology/ Technician
- Robotics Technology/Technician

Bachelor's Degrees
- Electrical and Electronics Engineering
- Engineering, General

Master's, Doctoral, and Professional Degrees
- Electrical and Electronics Engineering
- Engineering, General

Additional Stackable IBCs/Licensures
- Professional Engineer (PE License)
- Engineer in Training Certification (EIT)

Example Aligned Occupations

Civil Engineering Technologists and Technicians
Median Wage: $61,138
Annual Openings: 765
10-Year Growth: 11%

Aerospace Engineers
Median Wage: $115,694
Annual Openings: 483
10-Year Growth: 18%

Mechanical Engineers
Median Wage: $99,937
Annual Openings: 1,755
10-Year Growth: 19%

Data Source: Texas Wages, 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

Engineering Foundations

Engineering Career Cluster

Endorsement: Business & Industry or STEM

Statewide Program of Study: Engineering Foundations

Course Information

IT IS IN THE BEST INTEREST OF THE STUDENT TO TAKE ALL COURSES BELOW IN EACH GRADE

Level 1 9th Grade

Course	Prerequisites | Corequisites	Career Clusters
Principles of Applied Engineering* 13036200 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites**: None	
Principles of Technology* 13037100 (1 credit)	**Prerequisites:** One credit of high school science and Algebra I **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites**: None	

Level 2 10th Grade

Course	Prerequisites | Corequisites	Career Clusters
Robotics I* 13037000 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Principles of Applied Engineering **Recommended Corequisites:** None	

Level 3 11th Grade

Course	Prerequisites | Corequisites	Career Clusters
Engineering Science* 13037500 (1 credit)	**Prerequisites:** Algebra I, one credit in Biology, and at least one credit in a course from the STEM career cluster **Corequisites:** None **Recommended Prerequisites:** Geometry, Integrated Physics and Chemistry (IPC), one credit in chemistry, or one credit in physics **Recommended Corequisites:** None	
Digital Electronics* 13037600 (1 credit)	**Prerequisites:** Algebra I and Geometry **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	

Level 4 12th Grade

Course	Prerequisites | Corequisites	Career Clusters
Engineering Design and Presentation I* 13036500 (1 credit)	**Prerequisites:** Algebra I and at least one credit in a course from the STEM career cluster **Corequisites:** None **Recommended Prerequisites:** Principles of Applied Engineering **Recommended Corequisites**: None	

* Indicates course is included in more than one program of study.

See your school counselor to connect with a military recruiter for career counseling and to take the ASVAB in high school.