

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: 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 includes 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

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| Level 1 | <ul style="list-style-type: none"> Principles of Applied Engineering 8th Grade Engineering Design Process |
| Level 2 | <ul style="list-style-type: none"> Engineering Science |
| Level 3 | <ul style="list-style-type: none"> Architectural Engineering |
| Level 4 | <ul style="list-style-type: none"> Physics for Engineering Engineering Design and Problem Solving |

Aligned Advanced Academic Courses

AP	AP Calculus AB AP Computer Science A	AP Physics 1 AP Physics 2 AP Statistics
Dual Credit	Dual credit offerings will vary by local education agency.	

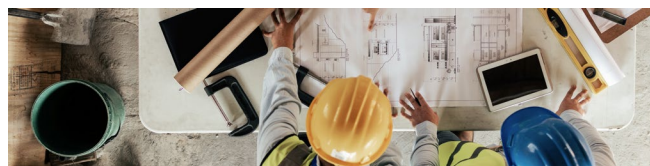
Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Intern at an engineering, robotics, or aerospace company. Visit an engineering firm and shadow multiple types of engineers.
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in SkillsUSA or TSA Join a local engineering association and attend meetings.

Aligned Industry-Based Certifications

- Engineering Technology Foundations

Mabank ISD does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs or activities and provides equal access to the Boy Scouts and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: Mr. Clay Tracy, Assistant Superintendent of Human Resources, 310 E. Market Street, Mabank, TX 75147, 903-880-1305.



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: \$60,297

Annual Openings: 899

10-Year Growth: 11%

Civil Engineers

Median Wage: \$82,483

Annual Openings: 2,223

10-Year Growth: 18%

Mechanical Engineers

Median Wage: \$103,189

Annual Openings: 1,455

10-Year Growth: 19%

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/eng-engineering-foundations-extended.pdf>