

# 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.

## CFISD Program of Study: Robotics – Engineering Focus

Successful completion of the Robotics-Engineering Focus program of study will fulfill requirements of the STEM endorsement if the math and science requirements are met or the Business and Industry endorsement.

The Robotics-Engineering Focus 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.



### Recommended Course Sequence (credits)(A=advanced)

Students wanting an endorsement in this area must select three (3) or more courses totaling four (4) or more credits with at least one being advanced.

**Grade 9**

- Principles of Applied Engineering (1)

**Grade 10**

- Robotics I (1)

**Grade 11**

- Robotics II K (1-math) (A)

**Grade 12**

- Engineering Design and Problem Solving K (1-science) (A)
- OR Capstone – Engineering (1) (A)
- OR Practicum in STEM (2) (A)

**Note:** There is a robotics program of study offering courses with a manufacturing focus available in the Manufacturing career cluster.

### Aligned Industry-Based Certifications Offered in CFISD

(course) (CCMR=impacts “career ready” status as outlined by the TEA Accountability System for College, Career or Military Readiness)

- FANUC Robot Operator 1 (Robotics II K) (CCMR)

### 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.

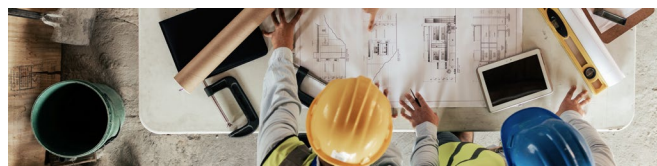
#### Expanded Learning Opportunities

- Participate in SkillsUSA or TSA
- Join a local engineering association and attend meetings.



- Receive training on industry-standard material, software & equipment.
- Enhance your resume by earning recognized industry-based certifications.
- Get a jump-start by taking advantage of core curriculum dual credit, transferable to 2-yr and 4-yr degrees.

**ALL AT A FRACTION OF THE COST!**



### 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

Data Source: Texas Wages, Texas Workforce Commission. rev 3/8/2024

#### Computer Numerically Controlled Tool Operators

Median Wage: \$46,353  
Annual Openings: 1,146  
10-Year Growth: 10%

#### 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%



For more information on this and other CTE programs of study offered in CFISD, visit <https://www.cfisd.net/academics/career-technical-education/programs-of-study>

What's next? For more information on related programs available to continue your studies at Lone Star College, visit <https://www.lonestar.edu/programs-of-study>

