

# 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"> <li>Principles of Applied Engineering</li> </ul>  |
| Level 2 | <ul style="list-style-type: none"> <li>Manufacturing Engineering Technology I</li> </ul>                                   |
| Level 3 | <ul style="list-style-type: none"> <li>Engineering Design and Presentation I</li> </ul>                                    |
| Level 4 | <ul style="list-style-type: none"> <li>Engineering Design and Presentation II</li> <li>Practicum in Engineering</li> </ul> |

## Aligned Advanced Academic Courses

<b>AP or IB</b>	AP Calculus AB AP Computer Science A	AP Physics 1 AP Physics 2 AP Statistics	IB Physics SL IB Physics HL IB Computer Science SL IB Computer Science HL
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Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

## Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Intern at an engineering company.</li> <li>Visit an engineering firm and shadow multiple types of engineers.</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>Participate in Robotics team, ACE, NASA Hydrology, ISM</li> <li>Join a local engineering association and attend meetings.</li> </ul>

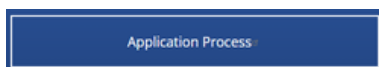
## Aligned Industry-Based Certifications

- Autodesk Associate (Certified User) AutoCAD
- Autodesk Associate (Certified User) Fusion 360
- Autodesk Associate (Certified User) Revit Architecture
- SOLIDWORKS Associate (CSWA) – Academic Certified SOLIDWORKS

## APPLY HERE



1. Click On Application Process



2. Click On Create Account



## 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: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.





For more information visit:

<https://www.nisd.net/sciaca>

# Engineering Career Cluster

## Statewide Program of Study: Engineering Foundations

### Course Information

	Course	Prerequisites   Corequisites	Career Clusters
Level 1	<b>Principles of Applied Engineering*</b> 13036200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Level 2	<b>Manufacturing Engineering Technology I*</b> 13032900 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Algebra I and Principles of Applied Engineering Recommended Corequisites: None	
Level 3	<b>Engineering Design and Presentation I*</b> 13036500 (1 credit)	Prerequisites: Algebra I Corequisites: None Recommended Prerequisites: Principles of Applied Engineering and Manufacturing Engineering Tech I Recommended Corequisites: None	
Level 4	<b>Engineering Design and Presentation II*</b> 13036600 (2 credits)	Prerequisites: Principles of Applied Engineering, Engineering Design and Presentation I, Algebra I, and Geometry Corequisites: None Recommended Prerequisites: Principles of Applied Engineering, Engineering Design and Presentation I and Manufacturing Engineering Tech I Recommended Corequisites: None	
	<b>Practicum in Engineering</b>	Prerequisites: TBD Corequisites: Recommended Prerequisites: Engineering Design and Presentation II Recommended Corequisites: TBD	