



Science,  
Technology,  
Engineering &  
Mathematics

# Engineering and Technology



**Cluster Overview:** Planning, managing, and providing scientific research and professional and technical services including laboratory and testing services, and research and development services.

[Career Goal \(O\\*NET Code\): Mechanical Engineers \(17-2141\), Aerospace Engineers \(17-2011\), Mechanical Engineering Technicians \(17-3027\), Engineering Managers \(11-9041\), Electronics Engineering Technicians \(17-3023\), Mapping Technicians \(17-3031\), Civil Engineering Technicians \(17-3022\).](#)

**Student's Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**School:** Mabank High School **Grade:**  9th  10th  11th  12th  AR

**Primary Endorsement:** STEM **Additional Endorsements:**  Arts & Humanities  Multidisciplinary  
 Business & Industry  Public Service

**Parent's Signature:** \_\_\_\_\_ **Student's Signature:** \_\_\_\_\_

## SUGGESTED COURSEWORK

## EXTENDED LEARNING EXPERIENCES

Middle School	8th	HS Courses:	Algebra I Art I Health	Spanish I Touch Systems Data Entry	<p><b>Curricular Experiences:</b> <a href="#">BEST Robotics, Inc.</a> <a href="#">FIRST Robotics Competition</a> <a href="#">Project Lead the Way</a> <a href="#">Skills USA</a> <a href="#">Technology Student Association</a> <a href="#">The Infinity Project</a></p> <p><b>Career Learning Experiences:</b> Career Preparation Job Shadowing Internship</p>	<p><b>Extracurricular Experiences:</b> Destination Imagination High School Students United with NASA International Bridge Building Contest Marine Advanced Technology Education Center National Engineering Design Competition UIL Academic Competitions VEX Robotics Competition</p> <p><b>Service Learning Experiences:</b> Campus Service Organizations Community Service Volunteer Peer Mentoring/Peer Tutoring</p>
High School	9th	<b>Core Courses:</b>	English I Pre-AP Geometry Pre-AP or AP Biology	World Geography Languages other than English I Physical Education		
		<b>Career-Related Electives:</b>	Introduction to Engineering Design (PLTW1)			
	10th	<b>Core Courses:</b>	English II Pre-AP Algebra II Pre-AP	World History Languages other than English II		
		<b>Career-Related Electives:</b>	Principles of Engineering (PLTW2)			
	11th	<b>Core Courses:</b>	English III Pre-AP Calculus Pre-AP Physics	United States History Languages other than English III		
<b>Career-Related Electives:</b>		Engineering Math				
12th	<b>Core Courses:</b>	English IV AP Calculus AP Physics	Government/Economics Fine Arts Languages other than English IV			
	<b>Career-Related Electives:</b>	Engineering Design & Problem Solving (PLTW3)				
Practicum and/or Work-Based Experiences		Central Services Technician	Office Machine Repairer	Survey Assistant	<p><b>Professional Associations:</b> <a href="#">American Chemical Society</a> <a href="#">American Institute of Aeronautics and Astronautics</a> <a href="#">American Institute of Chemical Engineering</a> <a href="#">American Society of Agricultural &amp; Biological Engineers</a> <a href="#">American Society of Civil Engineers</a> <a href="#">American Society for Engineering Education</a> <a href="#">American Society of Mechanical Engineers</a> <a href="#">Electronics Technicians Association International</a> <a href="#">Institute of Electrical and Electronic Engineers</a> <a href="#">International Technology Education Association</a> <a href="#">Mathematical Association of America</a> <a href="#">National Academy of Engineering</a> <a href="#">National Coalition for Electronics Education</a> <a href="#">National Electronics Service Dealers Association</a> <a href="#">Society of Automotive Engineers</a> <a href="#">Society of Women Engineers</a></p>	
	NOTE: These experiences may be started and/or completed as part of the high school experience.					
Certificates		AutoCAD Architecture AutoCAD	AutoCAD Civil 3D Autodesk Inventor	OSHA CareerSafe Revit Architecture	<p><b>Career Options:</b> Environmental Engineering Technician</p> <p>Mechanical &amp; Electrical Designer Mechanical &amp; Electrical Drafter</p>	
	NOTE: Certificates and licensure may be earned while in high school and may lead to a Performance Acknowledgement.					
Postsecondary	Associate Degrees	<a href="#">Cluster Foundation</a>	<a href="#">Program of Study (POS) Specific Courses</a>	<a href="#">15 hrs General Ed Curriculum</a>	<p><b>Career Options:</b> Electronics Technician</p> <p>Civil Engineering Technician</p>	
	Bachelor Degrees	<a href="#">Aerospace</a> <a href="#">Chemical</a> <a href="#">Civil</a>	<a href="#">Computer</a> <a href="#">Electrical</a> <a href="#">Industrial</a>	<a href="#">Manufacturing</a> <a href="#">Mechanical Systems</a>	<p><b>Career Options:</b> Engineering Technologist</p> <p>Engineer</p>	
	Graduate Degrees	<a href="#">Aerospace</a> <a href="#">Chemical</a> <a href="#">Civil</a>	<a href="#">Computer</a> <a href="#">Electrical</a> <a href="#">Industrial</a>	<a href="#">Manufacturing</a> <a href="#">Mechanical Systems</a>	<p><b>Career Options:</b> Corporate Engineering Medicine Analyst</p> <p>Administration and Management Engineering Technology</p>	

## COLLEGE CREDIT OPPORTUNITIES -- High School

Students should take Advanced Placement (AP), International Baccalaureate (IB), dual credit, Advanced Technical Credit (ATC), or locally articulated credit courses, if possible. List those courses that count for college credit on your campus.

This program of study (POS) serves as a guide, along with other college and career planning materials, for pursuing college and career goals. POS developed 2017. A Science, Technology, Engineering & Math (STEM) endorsement as defined in 19 TAC 74.13(f)(2)(A) requires a coherent sequence of courses for four or more credits in career and technical education (CTE) that consists of at least two courses in the least one advanced CTE same career cluster, including at course, which includes any course that is the third or higher course in a sequence. The final courses in the sequence must be obtained from the STEM career cluster.