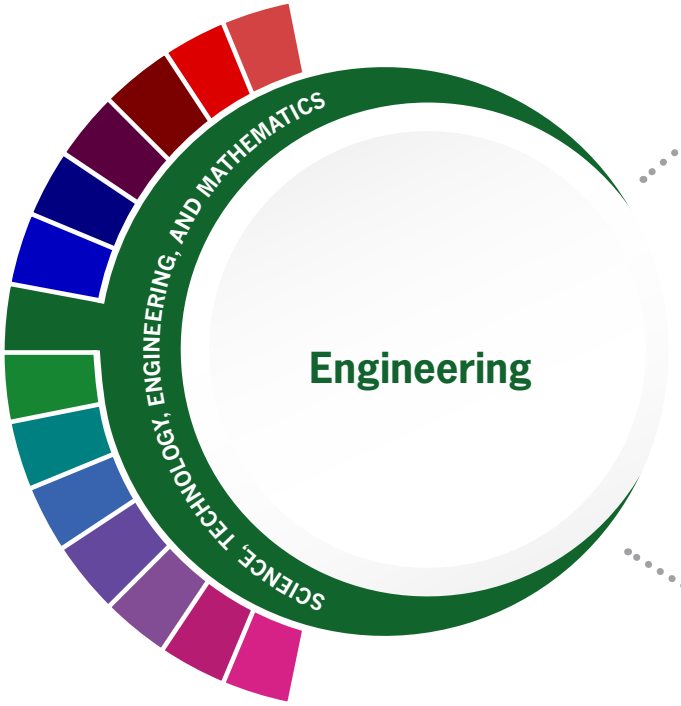

COURSES

LEVEL 1

Introduction to Engineering Design (PLTW)

LEVEL 2

LEVEL 3

Engineering Science

Digital Electronics

Computer Integrated Manufacturing

Engineering Design and Development (PLTW)

LEVEL 4

HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Autodesk Certified Professional or User (ACU) - Inventor	Engineer, Professional	Electrical and Electronics Engineering	Electrical and Electronics Engineering	Electrical and Electronics Engineering
OSHA	Fluid Power Systems Designer	Drafting and Design Technology/ Technician, General	CAD/CADD Drafting and/or Design Technology/ Technician	Mechanical Engineering
	Certified Biomedical Auditor	Engineering Technology	Bioengineering and Biomedical Engineering	Bioengineering and Biomedical Engineering
	Certified Cost Estimator/ Analyst		Construction Engineering Technology/ Technician	

Additional industry based certification information is available from the TEA CTE website.

For more information on postsecondary options for this program of study, visit TXCTE.org.

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Aerospage Engineers	$110,843	481	9%
Industrial Engineers	$97,074	1,263	10%
Mechanical Engineers	$91,707	1,535	11%
Chemical Engineers	$112,819	474	9%
Electrical Engineers	$98,405	1,137	10%

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities:
Participate in Robotics

Career Preparation Activities:
job shadow a machinist

The Engineering program of study focuses on the design, development, and use of engines, machines, and structures. Students will learn how to apply science, mathematical methods, and empirical evidence to the innovation, design, construction, operation, and maintenance of different manufacturing systems.

The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster® focuses on planning, managing, and providing scientific research and professional and technical services, including laboratory and testing services, and research and development services.

Successful completion of the Engineering program of study will fulfill requirements of the Business and Industry or STEM Endorsement.

Approved Statewide Program of Study - September 2019

COURSE INFORMATION

COURSE NAME	COURSE NUMBER AND CREDITS	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Introduction to Engineering Design	8716 (1 credit)	Algebra I or 8th grade math final average 80 or higher	9-10
Engineering Science	8715 (1 credit)	Algebra I and Biology	10
Digital Electronics	8717 (1 credit)	Algebra I & Geometry; IED and Engineering Science	11
Computer Integrated Manufacturing	8718 (1 credit)	IED & Engineering Science	11
Engineering Design & Development	8719 (1 credit)	CIM or DE	12

COURSE DESCRIPTIONS

Introduction to Engineering Design:

This course provides students with opportunities to be creative and to apply decision making and problem solving skills. Students will use powerful computer hardware and software (Inventor) to develop 3D models or solid renderings of objects.

Engineering Science: Satisfies a Science graduation requirement

This course is designed to help you understand field and career possibilities of engineering and engineering technology. You will be introduced to a wide variety of real problems that today's engineers are faced with.

Digital Electronics: Satisfies a Math graduation requirement

This is a course in applied digital logic. Students will be introduced to the digital circuits found in video games, watches, calculators, digital cameras, and thousands of other devices. This course is similar to a first semester college course, and it's important for anyone in engineering or engineering technology.

Computer Integrated Manufacturing:

This is a course that applies principles of prototyping, robotics, and automation. It builds on the solid modeling skills developed in IED. You will also be introduced to the fundamentals of robotics and how this equipment is used in an automated manufacturing environment.

Engineering Design & Development:

In this course, students will work in a team with one to three others to design and construct a solution to an engineering problem. Each team will be responsible in making final presentations to an outside review panel. The completed project will be very useful in college applications.

Engineering Math (8740): Satisfies a Math graduation requirement

Pre-requisite: Algebra II Optional course (not part of Program of Study)

Engineering Mathematics is a course where students solve and model robotic design problems. Students use a variety of mathematical methods and models to represent and analyze problems involving data acquisition, spatial applications, electrical measurement, manufacturing processes, materials engineering, mechanical drives, pneumatics, process control systems, quality control, and robotics with computer programming.

Courses in yellow are advanced courses for endorsement purposes.