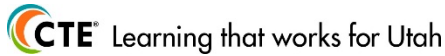


Utah Career and Technical Education Career Pathway

2019-2020 School Year



CTSO Information
 Career and Technical Student Organizations (CTSO) align with the national Career Clusters® and the Utah CTE Career Pathways.

TSA is the CTSO for students in the Manufacturing Engineering Career Pathway. TSA fosters personal growth, leadership, and opportunities in science, technology, engineering, and mathematics (STEM).

Workforce Trends
 A manufacturing engineer designs, documents and standardizes manufacturing processes, along with related tooling, for companies where they are employed. This is a niche occupation where specialized skills are required.

Career Cluster: Engineering & Technology

Career Pathway: Manufacturing Engineering

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
38.01.00.00.011	Manufacturing Principles 1	.50	1.00 credit
38.01.00.00.012	Manufacturing Principles 2	.50	
<i>Or choose the following course:</i>			
38.01.00.00.340	PLTW Computer-Aided Manufacturing	1.00	
ELECTIVE COURSES			
40.10.00.00.140	Composites	.50	2.00 credits
38.03.00.00.010	Engineering Technology	.50	
40.10.00.00.072	Machining 1 *	.50	
38.03.00.00.060	Manufacturing Technology	.50	
40.11.00.00.100	Material Handling	1.00	
40.10.00.00.085	Metalworking	.50	
38.01.00.00.211	Physics with Technology	1.00	
40.10.00.00.050	Plastics	.50	
40.10.00.00.110	Welding Technician – Entry Level	.50	
41.00.00.00.050	CTE Internship	.50	
41.00.00.00.030	Workplace Skills	.50	
3.00 credits for completion			

* Course can be taken up to 1.00 credit.
 Foundation courses taken beyond the required credits can be used as elective credit.

Career and Technical Education provides all students access to high-quality, rigorous career-focused programs that result in attainment of credentials with labor market value.

Manufacturing Engineering is:
 > High skill
 > High wage
 > High demand

Sample Occupations Requiring:
High School Diploma
 > Production Technician
Certificate
 > Production Technician
Assoc. or Technical Degree
 > N/A
Baccalaureate Degree
 > Career and Technical Education Teacher
 > Manufacturing Engineer
Graduate or Prof. Degree
 > Manufacturing Engineer

Student Testimonial
 “I would like a career as a manufacturing engineer and go on to pursue my own business in the manufacturing industry. CTE gave me experience for what my career will be like. CTE also [allowed me] to be able to work on the skills that I need to improve on in that specific area.”
 Garret Maycock

HIGH SCHOOL TO POSTSECONDARY EDUCATION AND TRAINING

There are a number of options for education and training beyond high school, depending on your career goals.

12th Grade	1-Year Certificate	2-Year Associate or Technical Degree	4-Year Bachelor’s Degree	More Graduate or Prof. Degree
	Certificates are awarded upon the successful completion of a brief course of study, usually one year or less. Upon completion of a course of study, a certificate does not require any further action to retain. In high school a variety of certificates can be earned.	An academic degree is an award for the completion of a program or course of study over multiple years at postsecondary education institutions. In 2016-2017, 74 percent of secondary students who concentrated in a CTE Career Pathway placed in postsecondary education, advanced training, military service or employment (October 1-December 31).		

Utah Business and Industry Facts
 In 2017, Northrop Grumman purchased aerospace manufacturer Orbital ATK (who has a strong presence in Utah) for \$9.2 billion. The company has nearly 3,000 employees with a payroll of approximately \$250 million.
 Northrop Grumman not only develops and tests propulsion systems for rockets and missiles, they manufacture advanced composite components for commercial and military aircraft.

CTE Skill Certificates
 Competency-based student assessments, measured by core standards and competencies, needed to be successful in the workforce.

In 2017-2018, 111,238 CTE skill certificates were awarded to high school students. Students’ knowledge and performance is demonstrated as part of the Skill Certificate process.

UtahFutures: College and Career Planning
 Visit UtahFutures.org for salary projections, labor market demand, and training options.

In 2016-2017, the graduation rate for students who concentrated in a CTE Career Pathway was 95 percent, compared to Utah’s statewide graduation rate of 86 percent.