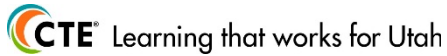


Utah Career and Technical Education Career Pathway 2019-2020 School Year

<p>CTSO Information Career and Technical Student Organizations (CTSO) align with the national Career Clusters® and the Utah CTE Career Pathways.</p> <p>Students who participate in the Aerospace Manufacturing Career Pathway choose among the following CTOS, depending upon what is available at their school: SkillsUSA TSA</p> <p>Workforce Trends Aerospace operations technicians work on many projects related to national defense and therefore require security clearances. In Utah, this occupation is expected to experience much faster than average employment growth.</p>	<h2 style="margin: 0;">Career Cluster: Manufacturing</h2> <h3 style="margin: 0;">Career Pathway: Aerospace Manufacturing</h3> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr style="background-color: #009999; color: white;"> <th style="padding: 5px;">CORE CODE</th> <th style="padding: 5px;">FOUNDATION COURSES (required)</th> <th style="padding: 5px;">CREDITS</th> <th style="padding: 5px;"></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">40.10.00.00.140</td> <td style="padding: 5px;">Composites 1</td> <td style="padding: 5px;">.50</td> <td rowspan="6" style="text-align: center; vertical-align: middle; padding: 5px;">3.00 credits</td> </tr> <tr> <td style="padding: 5px;">38.01.00.00.011</td> <td style="padding: 5px;">Manufacturing Principles 1</td> <td style="padding: 5px;">.50</td> </tr> <tr> <td colspan="3" style="padding: 5px; text-align: center;"><i>Or choose one the following courses:</i></td> </tr> <tr> <td style="padding: 5px;">40.10.00.00.085</td> <td style="padding: 5px;">Metalworking 1 *</td> <td style="padding: 5px;">.50</td> </tr> <tr> <td style="padding: 5px;">41.00.00.00.020</td> <td style="padding: 5px;">Apprenticeship</td> <td style="padding: 5px;">.50</td> </tr> <tr> <td style="padding: 5px;">41.00.00.00.050</td> <td style="padding: 5px;">CTE Internship</td> <td style="padding: 5px;">.50</td> </tr> <tr> <td style="padding: 5px;">41.00.00.00.030</td> <td style="padding: 5px;">Workplace Skills</td> <td style="padding: 5px;">.50</td> <td></td> </tr> <tr> <td colspan="4" style="padding: 5px; text-align: center;">3.00 credits for completion</td> </tr> </tbody> </table> <p style="font-size: small;">* Course can be taken up to 1.00 credit.</p> <p>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.</p>	CORE CODE	FOUNDATION COURSES (required)	CREDITS		40.10.00.00.140	Composites 1	.50	3.00 credits	38.01.00.00.011	Manufacturing Principles 1	.50	<i>Or choose one the following courses:</i>			40.10.00.00.085	Metalworking 1 *	.50	41.00.00.00.020	Apprenticeship	.50	41.00.00.00.050	CTE Internship	.50	41.00.00.00.030	Workplace Skills	.50		3.00 credits for completion				<p>Aerospace Manufacturing is: > High skill > High wage</p> <p>Sample Occupations Requiring: <u>High School Diploma</u> > Assembler/Fabricator > Welder <u>Certificate</u> > N/A <u>Assoc. or Technical Degree</u> > Aerospace Engineering and Operations Technician > Engineering Technician > Industrial Engineering Technician > Mechanical Drafter <u>Baccalaureate Degree</u> > Aerospace Engineer > Career and Technical Education Teacher > Materials Engineer > Mechanical Engineer <u>Graduate or Prof. Degree</u> > Aeronautical Engineer > Astronautical Engineer</p>
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<p>Student Testimonial "My long-term occupation and educational goal is to get a job working in the aerospace industry making composites. I appreciate the opportunity I have had to pursue CTE classes, both in high school and in the composites program at MATC. I feel like I have a head start on my future career. I feel that through taking CTE classes I was able to find a plan that will work for me." Jacob Michael Argyle</p>	<h3 style="margin: 0;">HIGH SCHOOL TO POSTSECONDARY EDUCATION AND TRAINING</h3> <p style="margin: 0;">There are a number of options for education and training beyond high school, depending on your career goals.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <tr> <td style="width: 20%; background-color: #009999; color: white; text-align: center; padding: 10px;">12th Grade</td> <td style="width: 20%; background-color: #ff9900; color: white; text-align: center; padding: 10px;">1-Year Certificate</td> <td style="width: 20%; background-color: #99cc33; color: white; text-align: center; padding: 10px;">2-Year Associate or Technical Degree</td> <td style="width: 20%; background-color: #ffcc00; color: white; text-align: center; padding: 10px;">4-Year Bachelor's Degree</td> <td style="width: 20%; background-color: #999999; color: white; text-align: center; padding: 10px;">More Graduate or Prof. Degree</td> </tr> </table> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%; padding: 5px;"> <p>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.</p> <p>In high school a variety of certificates can be earned.</p> </div> <div style="width: 45%; padding: 5px;"> <p>An academic degree is an award for the completion of a program or course of study over multiple years at postsecondary education institutions.</p> <p>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).</p> </div> </div>	12th Grade	1-Year Certificate	2-Year Associate or Technical Degree	4-Year Bachelor's Degree	More Graduate or Prof. Degree	<p>Utah Business and Industry Facts Aerospace and aviation companies located in Utah employ more than 42,000 workers.</p> <p>Utah high school seniors have the opportunity to participate in the Utah Aerospace Pathways program. The program was created by industry to open opportunities for young men and women who are interested in the aerospace.</p>																										
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Utah Career and Technical Education Career Pathway

2018-2019 School Year



CTSO Information
 Career and Technical Student Organizations (CTSO) align with the national Career Clusters® and the Utah CTE Career Pathways.
 Students who participate in the Medical Innovations Career Pathway choose among the following CTSOs, depending upon what is available at their school:
 SkillsUSA | TSA

Workforce Trends
 The life sciences industry in Utah is growing, as a result demand is increasing for skilled professionals. Utah's life sciences industry is comprised of more than 1,000 companies and 33,000 employees.
 According to BioUtah, the average life sciences job growth in Utah is 25%, compared to 9% in Florida and 7% in California and in Texas.

Career Cluster: Manufacturing

Career Pathway: Medical Innovations

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
38.01.00.00.011	Manufacturing Principles 1 *	.50	1.50 credits
	Choose Biomanufacturing or Industrial Plastics		
38.01.00.00.171	Biomanufacturing	.50	
40.10.00.00.050	Industrial Plastics	.50	
	Choose one of the following		
41.00.00.00.050	CTE Internship	.50	
41.00.00.00.030	Workplace Skills	.50	
1.50 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.

Partner School Districts include:
 Medical Device – Granite | Canyons
 Laboratory – Davis | Granite | Jordan | Tooele

Medical Innovations is:
 > High skill
 > High wage
 > High demand

Sample Occupations Requiring:
High School Diploma
 > Molding Operator
 > Production Operator
Certificate
 > Technician
Assoc. or Technical Degree
 > Study Director
 > Subcontracting Coordinator
Baccalaureate Degree
 > Career and Technical Education Teacher
 > Manufacturing Engineer
 > Production Specialist
Graduate or Prof. Degree
 > Manufacturing Engineer

Student Testimonial
 "The CTE courses I took in high school set the foundation I needed to choose my career path. Taking classes that were specific to my career allowed me to become more prepared for college life."
 Kaden Carroll

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.

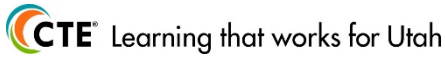
12th Grade	1-Year Certificate	2-Year Associate or Technical Degree	4-Year Bachelor's Degree	More Graduate or Prof. Degree
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Utah Business and Industry Facts
 Utah high school seniors have the opportunity to participate in the [Utah Medical Innovations Pathways program](#). The program was created by industry to open opportunities for young men and women who are interested in the medical innovations field.

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
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 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.

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.

Students who participate in the Welding Career Pathway choose among the following CTOS, depending upon what is available at their school:
FFA | SkillsUSA

Workforce Trends
In Utah, the occupation projection for welders, cutters, solderers, and brazers is 290 annual openings. Job prospects should be excellent for skilled candidates.

Career Cluster: Manufacturing

Career Pathway: Welding

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
40.10.00.00.110	Welding Technician, Entry Level	1.00	2.00 credits
40.10.00.00.112	Welding Technician, Intermediate Level	1.00	
ELECTIVE COURSES			
38.01.00.00.051	CAD Mechanical Design 1 *	.50	1.00 credit
38.01.00.00.052	CAD Mechanical Design 2	.50	
40.10.00.00.072	Machining 1 *	.50	
40.10.00.00.070	Machining 2 *	.50	
40.04.00.00.001	Non-destructive Testing	.50	
40.04.00.13.001	Non-destructive Testing CE	.50	
40.10.00.00.114	Welding Technician, Advanced Level *	1.00	
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

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.

Welding is:
> High skill
> High demand

Sample Occupations Requiring:
High School Diploma
> Welder, Cutter, Solderer, and Brazer
> Welder and Solderer Machine Operator

Certificate
> Welder

Assoc. or Technical Degree
> N/A

Baccalaureate Degree
> Career and Technical Education Teacher

Graduate or Prof. Degree
> N/A

Student Testimonial
"I took my first welding class in my sophomore year of high school and fell in love with it. Welding prepared me for college and my career by showing me I will have to continue on without giving up to reach my goals."
Fillmore Tukuafu

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
From construction sites to automotive body shops, from farms to manufacturing plants, welders are found in numerous industries throughout Utah.
According to the Utah Department of Workforce Services, the median hourly wage for a welders, cutters, solderers and brazers is \$18.64.

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

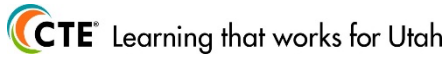
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Utah Career and Technical Education Career Pathway

2019-2020 School Year



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

SkillsUSA is the CTSO for students in the Cabinetmaking/Millwork Career Pathway. SkillsUSA provides quality education experiences for students in leadership, teamwork, citizenship, and character development.

Workforce Trends
 Job prospects will be best for highly skilled workers and those with knowledge of computerized machine tool operation.

Career Cluster: Manufacturing

Career Pathway: Advanced Manufacturing: Cabinetmaking/Millwork

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
40.10.00.00.020	Cabinetmaking	1.00	1.50 credits
40.10.00.00.130	Furniture Design and Manufacturing *	.50	
ELECTIVE COURSES			
38.01.00.00.041	CAD Architectural Design 1 *	.50	1.50 credits
38.01.00.00.051	CAD Mechanical Design 1 *	.50	
40.13.00.00.030	Industrial Design *	1.00	
40.10.00.00.072	Machining 1 *	.50	
40.10.00.00.070	Machining 2 *	.50	
40.10.00.00.085	Metalworking 1 *	.50	
38.01.00.00.330	PLTW Civil Engineering and Architecture	1.00	
38.01.00.00.390	PLTW Engineering Design and Development	1.00	
40.10.00.00.120	Woodworking *	.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

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.

Cabinetmaking/Millwork is:
 > High demand

Sample Occupations Requiring:
High School Diploma
 > Cabinetmaker
 > Carpenter
 > Supervisor of Construction Workers

Certificate
 > Cabinetmaking and Furniture Construction

Assoc. or Technical Degree
 > Cabinetry and Architectural Woodwork

Baccalaureate Degree
 > Career and Technical Education Teacher

Graduate or Prof. Degree
 > N/A

Student Testimonial
 "Throughout my high school career, I focused on the Cabinetmaking/Millwork CTE Pathway. My CTE classes have prepared me in many ways such as teaching me the knowledge I need to know about woodworking, learning about all the tools and machines and how to use the, and how to create and read plans."
 Kaydee Walters

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
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Utah Business and Industry Facts
 From residential to commercial construction, cabinetmakers and carpenters are in demand throughout Utah.

According to the Utah Department of Workforce Services, the median hourly wage for cabinetmakers and bench carpenters in Utah is \$16.11.

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

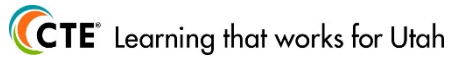
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Utah Career and Technical Education Career Pathway

2019-2020 School Year



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

SkillsUSA is the CTSO for students in the Machine Tool Career Pathway. SkillsUSA provides quality education experiences for students in leadership, teamwork, citizenship, and character development.

Workforce Trends
 Despite rising productivity that is expected to limit employment growth, opportunities should be excellent because not enough qualified people are attracted to production-related occupations.

Career Cluster: Manufacturing

Career Pathway: Advanced Manufacturing: Machine Tool

CORE CODE	FOUNDATION COURSES (required)	CREDITS	
40.10.00.00.072	Machining 1 *	.50	1.00 credit
40.10.00.00.070	Machining 2 *	.50	
ELECTIVE COURSES			
38.01.00.00.051	CAD Mechanical Design 1 *	.50	2.00 credits
38.01.00.00.052	CAD Mechanical Design 2	.50	
40.10.00.00.085	Metalworking 1 *	.50	
38.01.00.00.340	PLTW Computer Integrated Manufacturing	1.00	
38.01.00.00.390	PLTW Engineering Design and Development	1.00	
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			

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Machine Tool is:

- > High skill
- > High wage
- > High demand

Sample Occupations Requiring:

High School Diploma

- > Industrial Machinery Mechanic
- > Machinist
- > Tool and Die Makers

Certificate

- > N/A

Assoc. or Technical Degree

- > N/A

Baccalaureate Degree

- > Career and Technical Education Teacher

Graduate or Prof. Degree

- > N/A

Student Testimonial

"I took machine tool because I heard it was a great program, and that machinist make good money. I'm a hands-on worker and like to make stuff and see the finished product. If I'm going to work I want it to be something I want to do every day and enjoy doing it. I love being a machinist and I could see myself doing this for the rest of my life."

Gates Hadley

HIGH SCHOOL TO POSTSECONDARY EDUCATION AND TRAINING

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Utah Business and Industry Facts

Many businesses in Utah rely on the expertise of machinists, and their skilled knowledge of using precise measurements, as technologically advanced materials and equipment are manufactured and assembled.

According to the Governor's Office of Economic Development (GOED), the Northern Utah region has a strong existing base of aerospace and composites companies, with more than 30 companies and an estimated 16,500 employers.

CTE Skill Certificates

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