

CTE Course Description and Standards Crosswalk

Course Information	
Course Name	3D Solid Modeling Semester 2
Course Number	86442
Number of High School Credits	.5
Sequence or CTEPS (You must first have the Sequence or CTEPS entered into the EED-CTE system.)	Pre-Engineering
Date of district Course Revision	November 2018
Career & Technical Student Organization (CTSO)	
CTSO embedded in this sequence	SkillsUsa
Occupational Standards	
Source of Occupational Standards	States' Career Clusters Initiative (SCCI)
Names/Numbers of Occupational Standards	Engineering and Technology Pathway
Registration Information	
Course Description (brief paragraph – as shown in your student handbook or course list)	Learning 3D design is an interactive process. Students learn best when they can explore the practical applications of the concepts that they learn. This STEM course has many activities and exercises that enable students to put design concepts into practice. Students create their ideas such as artificial heart components, extreme sports equipment, hip replacement parts, robotic arm components, musical instruments and their parts as well as many others. Ideas become reality in this course.
Instructional Topic Headings (please separate each heading by a semi-colon)	3D Solid Modeling, E-Drawing; SolidWorks Design Features; Sheet Metal Design; Certification Preparation; Career Exploration
Summative Assessments and Standards	
Technical Skills Assessment (TSA)	Yes
Course addresses:	CSWA
New Alaska ELA and Math Standards	Yes
Alaska Cultural Standards	Yes
All Aspects of Industry (AAI)	Yes
Core Technical Standards	Yes
Employability Standards	Yes
Employability Standards	
Source of Employability Standards	State of Alaska
Tech Prep	
Current Tech Prep Articulation Agreement? (Y/N)	No
Date of Current Agreement	
Postsecondary Institution Name	
Postsecondary Course Name	
Postsecondary Course Number	

DISTRICT NAME: Matanuska Susitna Borough School District

# of Postsecondary Credits	
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Additional CTE Course Information

Author	
Course developed by	
Course adapted from	
Date of previous course revision	
Course Delivery Model	
Is the course brokered through another institution or agency? (Y/N)	

Standards Alignment

Student Performance Standards (Learner Outcomes or Knowledge & Skill Statements)	Specific Occupational Skills Standard	Common Technical Core Standards	New Alaska ENG/LA Standards	New Alaska Math Standards	Alaska Cultural Standards	Employability/ Career Readiness Standards	All Aspects of Industry/ Systems	Assessment
Demonstrate understanding of eDrawing basics.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9-12.4	MP1	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Demonstrate understanding of visualization techniques in 3D solid modeling.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9-12.4	MP5	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Demonstrate understanding of assembly mates.	SCPA 03, 04, 10	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9-12.4	MP6	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test

DISTRICT NAME: Matanuska Susitna Borough School District

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Demonstrate understanding of 3D sketching.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9- 12.4	MP5	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Demonstrate understanding of advanced design in 3D solid modeling.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9- 12.4	MP1	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Demonstrate understanding of the design checker feature.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9- 12.4	MP2	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Demonstrate understanding of basic sheet metal design theory.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9- 12.4	MP1	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Demonstrate understanding of sheet metal design.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9- 12.4	MP1	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Demonstrate understanding of surfacing features and the application of surfacing features.	SCPA 03, 04, 10	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9- 12.4	MP1	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test

DISTRICT NAME: Matanuska Susitna Borough School District

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Demonstrate understanding of weldment features and the application of weldment features.	SCPA 03, 04, 10	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9-12.4	MP2	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Demonstrate understanding of predictive analysis and simulation.	SCPA 03, 04, 10	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9-12.4	MP5	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Apply techniques learned to a medium scale industry based design challenge.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9-12.4	MP1	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Use knowledge gained in previous lessons to engage in a national design certification.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9-12.4	MP1,8	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Apply techniques learned to a large scale industry based design challenge.	SCPA 03, 04, 10, 11	ST 1, 2, 6 ST-ET 1, 2, 3, 4, 5	L.9-12.6 RST.9-12.4	MP1,7	B 2 & 4	A2,5	Technical Skills Technology	Classroom Observation and Discussion Chapter Skills Test
Investigate Careers in Engineering, research job opportunities in Alaska.	SCC09	ST 4, 5	L.11-12.6	MP 1	B 2,3	A 2, 5	Technical Skills	Classroom Observation, Discussion, Exam
Demonstrate safe use of tools and equipment in the workplace.	SCC09	ST 3	L.11-12.6	MP 1, 5, 6	A1 B 2,3,4	A2,5,6,7	Technical Skills Health/Safety	Classroom Observation, Discussion, Exam

DISTRICT NAME: Matanuska Susitna Borough School District

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Participate in CTSO (SkillsUSA, HOSA, BPA) practicing leadership skills.	SCC09	ST 1-6, ST-ET 1-6	L.11-12.6	MP1	B2,3,4 C4	A1-7 B1-5	Technical Skills Planning Health/Safety Technology Labor	Classroom Observation, Discussion, Exam
Learn, model and develop employability skills (communication, punctuality, work ethic, integrity, honesty, etc).	SCC09	ST 1-6, ST-ET 1-6	L.11-12.6	MP1	B2,3,4 C4	A1-7 B1-5	Technical Skills Planning Health/Safety Technology Labor	Classroom Observation, Discussion, Exam

Instructional Resources

List the major instructional resources used for this course: (websites, textbooks, essential equipment, reference materials, supplies)

**STEM 101
SolidWorks**