

CTE Course Description and Standards Crosswalk

Course Information	
Course Name	3D Solid Modeling Semester 1
Course Number	86441
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	Skills USA
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)	Graphical User Interface; Sketcher; 3D Design; Assembly; Career Exploration
Summative Assessments and Standards	
Technical Skills Assessment (TSA)	none
Course addresses:	
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	

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# 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 an understanding of a user interface.	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 an understanding of a graphical user interface.	SCPA 03, 04, 10, 11	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
Demonstrate understanding of the sketcher.	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

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Demonstrate and apply basic functionality in a 3D 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 sketched features.	SCPA 03, 04, 10, 11	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
Demonstrate understanding of basic operations 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 applied features.	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 drawings.	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
Demonstrate understanding and apply revolve, sweep and loft features.	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

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Demonstrate understanding of pattern features.	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 fillets.	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
Demonstrate understanding of parts 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 design tables.	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 assembly theory.	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
Demonstrate understanding of basic assemblies.	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

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Demonstrate understanding of toolbox and drawing basics.	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
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
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**