DISTRICT NAME: Mat-Su Borough School District

CTE Course Description and Standards Crosswalk

Course Information	
Course Name	Introduction to Engineering Design
Course Number	86401
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	March 2014
Career & Technical Student Organization (CTSO)	
CTSO embedded in this sequence	Skills USA
Occupational Standards	
Source of Occupational Standards	States Career Cluster Initiative (STEM); PLTW
Names/Numbers of Occupational Standards	SCCI, PLTW
Registration Information	
Course Description (brief paragraph – as shown in your student handbook or course list)	Introduction to Engineering Design is a course that teaches problem-solving skills using a design development process. Models of product solutions are created, analyzed and communicated using solid modeling computer design software. PLTW is supplemental to course objectives.
Instructional Topic Headings (please separate each heading by a semi-colon)	Evolution of Innovation; Sketching and Visualization; Production; Modeling; Elements of Design; Geometric Relationships; Marketing; Design Analysis
Summative Assessments and Standards	
Technical Skills Assessment (TSA)	Yes
Course addresses:	Introduction to Engineering Design
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	
# of Postsecondary Credits	

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Additional CTE Course Information

Author	
Course developed by	Revised by Mary Shreves
Course adapted from	PLTW
Date of previous course revision	May 2010 (Ralph)
Course Delivery Model	
Is the course brokered through another institution or agency? (Y/N)	No

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
Students will explore the concepts of form and function and explain its use in product design.	SCC02 SCC03.01	ST1, 4 ST-ET 1,2,4,5	SL.9-10.1.a-d,2,4,5 L.9-10.3.a RST.9-10.1,4,7 W.9-10.6,7	N-Q.2	B:2,4	A:1,2,5	Technology Community Technical Skills	PLTW Assessments
Students will apply the steps of the design process to solve a variety of design problems.	SCC03.01	ST1,4 ST-ET 1,2,3,4,5,6	SL.9-10.1.a-d,4,5 RST.9-10.1,3 WHST.9-10.7,9	N-Q.2-3	A:7 B:2,3,4	A:1,2,5	Technology Community Technical Skills	PLTW Assessments

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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
Students will develop a portfolio to organize and display evidence of their work.	SCC09.01.01	ST1,2,3,4 ST-ET 1,2,3,4,5,6	SL.9-10.4,5		B:2,3,4	A:1,2,3,4,5 B:1, 2, 3, 4, 5	Technology Community Technical Skills	PLTW Assessments
Students will evaluate and select the necessary views to graphically communicate design solutions, and translate a three-dimensional drawing or model into corresponding orthographic drawing views.	SCC03 SCC04.02	ST1,2,4 ST-ET 1,2,3,4,5,6 ST 5	SL.9-10.4 RST.9-10.3,4,7	N-Q.1-3 G-CO. 1,2,3,5	B:2,3,4 E:2	A:1,2,5	Technology Community Technical Skills	PLTW Assessments
Students will identify major geometric shapes.	SCC02.02.01	ST1,2,4,5 ST-ET 1, 2,4,5	L.9-10.6 RST.9-10.4,10	G-CO.1	B:2,3,4	A:1,2,5	Technology Community Technical Skills	PLTW Assessments
Students will draw three-dimensional sketches using CAD software.	SCC04.02.04	ST1,2,4,5 ST-ET 1, 2,3,4,5	SL.9-10.5 RST.9-10.3	N-Q.1-3 G-CO.1,2,4,5,12	B:2,3,4	A:1,2,5	Technology Community Technical Skills	PLTW Assessments
Students will explore and demonstrate assembly modeling skills to solve a variety of design problems.	SCC04.02.02	ST1,2,4,5 ST-ET 1, 2,3,4,5	SL.9-10.5 RST.9-10.3	N-Q.1-3 G-CO.1,2,5	B:2,3,4	A:1,2,5	Technology Community Technical Skills	PLTW Assessments
Students will interpret data which have been statistically analyzed to ensure product quality.	SCC02.02.01	ST1,2,4,5 ST-ET 1, 2,3,4,5	SL.9-10.2,4 RST.9-10.1,7,9 WHST.9-10.6,9	S-ID.1,2,4,9 S-IC.1-3,6	B:2,3,4	A:1,2,5	Technology Community Technical Skills	PLTW Assessments
Students will learn dimensioning conventions, tolerances, and apply using CAD software to section and								

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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
auxiliary views.								
Students will develop advanced CAD modeling skills through the use of applied project drawings.								
Students will utilize a Decision Matrix in advanced design projects.								
Students will participate in CTSO classroom activities.	SCC01 SCC05	ST1,2,4,5,6 ST-ET 1,2,3,4,5,6	SL.9-10.1.a		A:7 B:1,2,3,4 E:7,8	A:1,2,3,4,5,6 B:1,2,3,4,5	Labor Work Habits Management Technology Community Technical Skills	Portfolio

Instructional Resources

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

High School Engineering

The Pathway To Engineering (PTE) curriculum is designed as a four-year high school sequence. Foundation courses (Introduction to Engineering Design, Principles of Engineering, and Digital Electronics) are supplemented by a number of electives to create eight rigorous, relevant, reality-based courses. PLTW is supplemental to course objectives.