

## CTE Course Description and Standards Crosswalk

### Course Information

Course Name	Introduction to Engineering Design
Course Number	86402
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
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### 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
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### 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
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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 visual analysis skills while participating in a Reverse Engineering project.							Technology Community Technical Skills	PLTW Assessments
Students will develop functional analysis skills while participating in a Reverse Engineering project.							Technology Community Technical Skills	PLTW Assessments
Students will develop structural analysis skills while participating in a Reverse Engineering project.							Technology Community Technical Skills	PLTW Assessments
Students will be able to identify possible product improvements and innovations while participating in a Reverse Engineering project.								
Using CAD software, students will draw three-dimensional sketches of the Reverse Engineered objects.	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

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Students will apply correct dimensioning to the 3D CAD drawings of the Reverse Engineered objects.	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 apply the steps of the design process to develop and solve design problems associated with an advanced Design Project.	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
Students will utilize a Decision Matrix in the advanced Design Project.								
Students will learn how to write a Design Brief and apply the knowledge to the advanced Design Project.							Technolog y Communit y Technical Skills	PLTW Assessmen ts
Students will complete their project portfolio.	SCC09.01.0 1	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	Technolog y Communit y Technical Skills	PLTW Assessmen ts
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 Managem ent Technolog y Communit y Technical Skills	Portfolio

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### 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.