DISTRICT NAME: Kenai Peninsula School District

CTE Course Description and Standards Crosswalk

- **The information on page 1 must be entered directly into the EED CTE Web Portal (log in at https://www.eed.state.ak.us/tls/cte/perkins with your district credentials)**
- **Then this entire form can be submitted by using the *"Click here Provide Supporting Documentation"* link on the Web Portal, or by emailing it to ctegrants@alaska.gov.**

Basic CTE Course Information

Course Information	
Course Name	Engineering, Principles of
Course Number	II925
Number of High School Credits	.5
Sequence or CTEPS (You must first have the Sequence or CTEPS name put into the system.)	Engineering
Occupational Standards	
Source of Occupational Standards	Project Lead The Way
Names/Numbers of Occupational Standards	PLTW
Registration Information	
Course Description (brief paragraph – as shown in your student handbook or course list)	Principles of Engineering is a course that helps students understand the field of engineering/engineering technology. Exploring various technology systems and manufacturing processes help students learn how engineers and technicians use math, science and technology in an engineering problem solving process to benefit people. The course also includes concerns about social and political consequences of technological change. This course is part of the PLTW (Project Lead the Way) Pre-Engineering Program.
Instructional Topic Headings (please separate each heading by a semi-colon)	Engineering Teams; Simple Machines; Electrical Systems; Engineering for Reliability; Technical Writing; Thermodynamics; Control Systems; Dynamics/Kinematics; Design Process; Fluid Systems; Materials and Materials Testing
Summative Assessments and Standards	
Technical Skills Assessment	Y
Course addresses Alaska GLEs	Y

Course addresses Employability Standards	Y
Course addresses Cultural Standards	Y
Course addresses All Aspects of Industry (AAI)	Y
Career & Technical Student Organization (CTSO)	
CTSO associated with this course	SkillsUSA
Tech Prep	
Current Tech Prep Articulation Agreement? (Y/N)	N
Date of Current Agreement	
Postsecondary Institution Name	
Postsecondary Course Name	
Postsecondary Course Number	
# of Postsecondary Credits	

Additional CTE Course Information

Author	
Course developed by	Project Lead The Way
Course adapted from	Project Lead The Way
Date of last course revision	2010
Course Delivery Model	
Is the course brokered through another institution or agency? (Y/N)	N
Certificate, Credential, or License	
Industry-recognized skill certificate, credential, or state license that a student is eligible for upon successful completion of the course?	Y PLTW Principles of Engineering (POE)-[P]
Issuing body/organization/agency	PLTW

Standards Alignment

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Student Performance Standards **(Learner Outcomes or Knowledge & Skill Statements)**	**Specific Occupational Skills Standards**	**Alaska Reading, Writing, Math, & Science Standards**	**Alaska Employability Standards**	**Alaska Cultural Standards**	**All Aspects of Industry**	**Formative Assessment**
Understand that an engineering team must work together to solve problems, with each team member having individual and collective responsibilities.	PLTW	M7.4.1-2 SE1.1 SF1-3	A1,A2	A1,A6 B1,B3 E1,E7,E8	Labor Issues, Comm Issues	PLTW Assessments
Students will design and deliver a presentation utilizing appropriate support materials about research they have conducted.	PLTW	M8.4.1-3 SB1-4 SE1-3 W4.2.2 W4.2.4	A1,A2		Prin of Tech, Comm Issues	PLTW Assessments
Students will examine the evolution of an invention to observe and report on how the design process is applied to continuously redesign and improve the product.	PLTW	M8.2.1-3 SE1-3 SF1-3 W4.2.2 W4.2.4	A1,A2	E5	Prin of Tech, Comm Issues	PLTW Assessments
Students will mathematically explain the mechanical advantage gained and explain the function of the six different types of simple machines in a presentation on the Simple Machine Energy Transformation (SMET) device.	PLTW	M3.4.1 M7.2.2 M8.4.1-3 SB2 SB4.1 W4.2.2	A1,A2		Prin of Tech, Comm Issues	PLTW Assessments
Students will design, construct and test a model bridge to support the greatest amount of weight per gram of bridge mass.	PLTW	R4.4.1-2 SA3.1 SE2.1 M2.4.3 M3.4.1 M7.2.2	A1,A2,A3		Finance, Prin of Tech, Comm Issues	PLTW Assessments
Students will be able to collect, analyze, and test samples of the four basic materials.	PLTW	SA1.2 M7.4.3 M8.4.1-3 W4.2.2 W4.2.4	A1,A2,A3		Prin of Tech, Comm Issues	PLTW Assessments
Students will be able to describe and safely conduct destructive and non-destructive material testing and will be able to use the data collected through these tests to	PLTW	SB1.1 SB4.1 MN7	A1,A2,A3		Finance, Prin of Tech,	PLTW Assessments

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Student Performance Standards (Learner Outcomes or Knowledge & Skill Statements)	Specific Occupational Skills Standards	Alaska Reading, Writing, Math, & Science Standards	Alaska Employability Standards	Alaska Cultural Standards	All Aspects of Industry	Formative Assessment
compute and document mechanical properties.		M8.4.1-3 W4.2.2 W4.2.4			Comm Issues	
Students will prepare and defend a position on an ethical engineering dilemma.	PLTW	SE1.1 SE2.1 M6.2.1-2 M6.4.1 W4.2.2 W4.2.4	A1,A2	E3,E7	Prin of Tech, Comm Issues	PLTW Assessments
Students will be able to analyze test data and utilize the results to make decisions.	PLTW	SA1.2 SB4.1 M7.4.2	A1,A2		Prin of Tech, Comm Issues	PLTW Assessments
Students will participate in CTSO classroom activities.	C1:1	R4.4	A1-4, B1	A7, B1-2, E7		Portfolio
Students will be exposed to careers in engineering.						

Instructional Resources

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

Project Lead the Way (PLTW) http://www.pltw.org/aindex.htm