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	Digital Electronics
Course Number	II945
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)	Digital Electronics is a course in applied logic that encompasses the application of electronic circuits and devices. Computer simulation software is used to design and test digital circuitry prior to the actual construction of circuits and devices. This course is part of the PLTW (Projec Lead the Way) Pre-Engineering Program.
Instructional Topic Headings (please separate each heading by a semi-colon)	Safety; Logic Gates; Registers and Counters; Electron Theory; Programmable Logic Devices; Microprocessors; Analog and Digital Waveforms; Flip-Flop Applications
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 Digital Electronics (DE) Exam – [P]
Issuing body/organization/agency	PLTW

Standards Alignment

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
Students will understand that the process of designing an electronic circuit takes into account many factors, including environment concerns, and will be familiar with precautionary measures.	PLTW	R4.3.2 SA2.1 SA3.1	A1,A2,A3	B4	Finance, Princ of Tech, Comm Issues	PLTW Assessments
Students will understand numerical place value.	PLTW	M1.4.1 SG1.1	A2		Princ of Tech, Comm Issues	PLTW Assessments
Students will use schematics and symbolic algebra to represent digital gates in the creation of solutions to	PLTW	M7.4.1-3 M8.4.1-3	A1,A2		Princ of Tech,	PLTW Assessments

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**
design problems.		SE2.1 W4.2.4			Comm Issues	
Students will be able to create Boolean Expressions, logic circuit diagrams or truth tables from information provided in the solution of design problems.	PLTW	M7.4.2 M8.4.1-3 M10.4.2 R2.6.2 SE2.1	A2		Princ of Tech, Comm Issues	PLTW Assessments
Students will be able to design and implement combinational logic circuits using reprogrammable logic devices.	PLTW	M1.4.1 M4.2.1 M4.4.3 M7.4.2 M8.4.1-3 R2.6.2 SB2.1 SE2.1	A1,A2		Princ of Tech, Comm Issues	PLTW Assessments
Students will demonstrate understanding of binary addition and subtraction by designing circuits to produce correct answers.	PLTW	M1.4.2 M1.4.3 M3.3.5 R2.6.2 SE2.1 SG3.1	A1,A2		Princ of Tech, Comm Issues	PLTW Assessments
Students will be able to interpret waveform diagrams from circuits they construct and compare them with combinational waveforms.	PLTW	M2.4.1 M2.4.3 M4.4.1 M6.4.1 M10.4.2 SA1-2	A1,A2		Princ of Tech, Comm Issues	PLTW Assessments
Students will conduct experiments to determine the basic principles of how shift registers work.	PLTW	M7.4.1-3 M10.4.2 SA1-2	A1,A2		Princ of Tech, Comm Issues	PLTW Assessments
Students will be able to correctly setup and use an oscilloscope to observe and measure propagation delay in a digital circuit.	PLTW	M2.4.1 M2.4.3 M10.4.1	A1,A2		Princ of Tech, Comm Issues	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
		R4.4.1 SA1				
Students will be able to design and create a program in correct syntax allowing a microprocessor to evaluate external data in order to operate motors and other devices to control the external environment.	PLTW	M7.4.1-2 M8.4.1-3 M10.4.1 R4.4.2 SB1-4	A1,A2		Princ 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

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