

CTE Course Description and Standards Crosswalk

Course Information

Course Name	Welding Technology Services 1 Semester 1
Course Number	86311
Number of High School Credits	1
Sequence or CTEPS (You must first have the Sequence or CTEPS entered into the EED-CTE system.)	Welder
Date of district Course Revision	September 2014

Career & Technical Student Organization (CTSO)

CTSO embedded in this sequence	Skills USA
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Occupational Standards

Source of Occupational Standards	American Welding Society (AWS)
Names/Numbers of Occupational Standards	Certified Welder -AWS

Registration Information

Course Description (brief paragraph – as shown in your student handbook or course list)	Welding Part 1 covers the basic theory and operations of welding. The basic operations of welding include safety and health, tools and equipment (handling and care of), OAW (oxy-acetylene welding), OAC (oxy-acetylene cutting), SMAW (shielding metal arc welding), GMAW (gas metal arc welding), GTAW (gas tungsten arc welding), PAC (plasma arc cutting). The course also covers general techniques with basic blueprinting and metallurgy. This course lays the groundwork for knowledge and skills necessary to pass the AWS (American Welding Society) Level 1 certification written test and welds.
Instructional Topic Headings (please separate each heading by a semi-colon)	Overall Welding Safety; Tools, Equipment and Repair; Base and Filler Metal Identification and Selection; OAW Welding Process and Variables; OAC Process and Variables; SMAW Welding Process and Variables; GMAW Welding Process and Variables; GTAW Welding Process and Variables; PAC Process and Variables; Basic Blueprint Reading and Metallurgy; Career Employability Information; Encourage Career and Technical Student Organizations (CTSO)—SkillsUSA; AWS Entry Level Welder Certification

Summative Assessments and Standards

Technical Skills Assessment (TSA)	Yes
Course addresses:	Automated Manufacturing Technology, Welding Level 1 – Base Metal Preparation Module 29103-03, Joint Fit-up and Alignment – Module 29109-03, Oxyfuel cutting – Module 29102-03, SNAW – Beads and Fillet Welds – Module 29107-03, Electrodes and Selection – Module 29106-03, Equipment and Setup – Module 29105-03, Groove Welds with Backing – Module 29108-03, SMAW – Open V-Groove Welds – Module 29110-03, SMAW – Open-Root Pipe Welds – Module 29111-03, Weld Quality – Module 29104-03, Welding Safety – Module 29101-03,
New Alaska ELA and Math Standards	Yes
Alaska Cultural Standards	Yes

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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)	Yes
Date of Current Agreement	May 15, 2013
Postsecondary Institution Name	University of Alaska Anchorage
Postsecondary Course Name	Gas and Arc Welding (Welding Part 1 only); Shield Metal Arc Welding & Gas Metal Arc Welding (Welding Part 1 & 2 together)
Postsecondary Course Number	WELD A101; WELD A112 & WELD A161
# of Postsecondary Credits	12 (combined with Welding 2), 4 for only Welding 1

Additional CTE Course Information

Author	
Course developed by	Gilbert Campbell, Bryan Kirby, Ben Parker, Dan Trotter
Course adapted from	MSBSD Previous Welding Course
Date of previous course revision	2007
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
Identify safe welding procedures.	AWS Ex 1.2.1	MN3 MN-HSE 1,2 CRP 1, 2, 3, 5, 8, 9	RI.11-12.1 -4, RST.11-12.1-3; 7	S-ID.9 S-IC.1,3,5,6 S-MD.6,7	A1 B2, B4	A2, A5, A6	Health/Safety	State of AK DEED Safety test
Identify safe and efficient use of tools and equipment.	AWS Ad 1.6.4	MN3 MN-HSE1-7 MNPPD 3 MN-PPD 5 MN-MIR 1-7 CRP 1, 2, 3, 5, 8, 9	RI.11-12.1 -4, RST.11-12.1-3; 7	S-ID.9 S-IC.1,3,5,6 S-MD.6,7	A1 B2, B4	A2, A5, A6	Health/Safety Technical Skills	Certified Welder Exam through AWS Student has to demo and explain safe use

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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
Develop proficiency in OAC, PAC.	AWS 1.4.1	MN-PPD 1-5 CRP 2, 3, 6, 8, 9, 10	RST.11- 12.1-3, 7, 9	G-SRT.8 G- GMD.1,3,4 G- MG.1,2,3	B2, B4	A2, A5	Technical Skills	Certified Welder Exam through AWS Produce quality weld or cut from weld schedule Written test
Develop understanding in SMAW, GMAW, GTAW processes.	AWS 1.3.7	MN-PPD 1-5 CRP 1,2,3,5,8,9	RST.11- 12.1-3, 7, 9	G-SRT.8 G- GMD.1,3,4 G- MG.1,2,3	B2, B4	A2, A5	Technical Skills	Certified Welder Exam through AWS Produce quality weld from weld schedule. Written test.
Understand base and filler metal properties.	AWS Ad18a	MN-PPD 1-5 CRP1,2,3,5, 8,9	RST.9- 10.3-5, 8	S-IC.5,6	B2, B4	A2, A5	Technical Skills	Certified Welder Exam through AWS

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								Written Test
Identify career opportunities.	AWS NCDG 2.06H, 3.09D	MN 4 CRP2,3,6,8, 9,10	W.11- 12.4, 5, 6 SL.9-10. 4- 5, L.11-12. 1- 3, 6	S-IC.6 S-CP.5	A1 B2, B4	A2, A3, A5, B1, B2, B3, B4, B5	Planning Community Labor	Resume and electronic portfolio creation from AKCIS.
Read basic blueprints and discuss metallurgy.	AWS Ex 1.1.7d	STET 4 CRP2,7,11	RST.9-10. 7 RST.11- 12.1-4 RST.11- 12.7-9	N-Q.1 N-CN.4,5,6 G-CO.1-13 G-SRT.8	B2, B4	A2, A5	Technical Skills	Certified Welder Exam through AWS Written Test Project from blueprint.
Prepare for SkillsUSA technical and leadership competitions.		MN-PPD-5 MN 6 CRP 1 - 12	RST.11- 12.1-4, 7- 9 W.11- 12.4, 5, 6 SL.9-10. 4- 5, L.11-12. 1- 3, 6 RST.9- 10.3-5, 8 W.11-	N-VM8 G- GMD.1,3,4 G-MG1,2,3 S-IC.6 S-CP.5 N-Q.1 N-CN.4,5,6 G-CO.1-13 G-SRT.8	A1 B2, B4	A2, A3, A5, B1, B2, B3, B4, B5	Work Habits Planning Community	Participation in Student Performanc e Conference. SkillsUSA Assessment Test

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			12.4, 5, 6 SL.9-10. 4-5, L.11-12. 1-3, 6					
Select appropriate AWS certification.	AWS Ad 1/2J	CRP 1,2,8,10,11	RST.11-12.1-4, 7-9 W.11-12.4, 5, 6 SL.9-10. 4-5, L.11-12. 1-3, 6 RST.9-10.3-5, 8	N-VM8 G- GMD.1,3,4 G-MG1,2,3 S-IC.6 S-CP.5 N-Q.1 N-CN.4,5,6 G-CO.1-13 G-SRT.8	B2, B4	A2, A5	Technical Skills	Certified Welder Exam through AWS Hands-On Performance Test.

Instructional Resources

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

Recommended Text: Welding Technology, Bowditch, Goodheart-Willcox, 1997.

Resources:

American Welding Society AWS D1.1 Structural Welding Code

American Petroleum Institute API 1104

Hobart Institute of Welding Technology Training Workbooks, SMAW, GTAW, GMAW, OAW, FCAW, 1997, www.welding.org