

Iowa SENSE Aligned Welding Curriculum

General Course Info

Course Number:	274
Discipline:	WEL – Welding
Course Title:	Shielded Metal Arc Welding I: SENSE 1
Short Title:	SMAW I: SENSE1

Course Details

Course Description:	Focuses on safety, amperage settings, polarity and the proper selection of electrodes for the shielded metal arc welding process. Students will perform American Welding Society compliant welds on carbon steel, using visual and destructive methods for determining weld quality. This course aligns to SENSE Level 1 Module 4 - Key Indicators 1-7 for the flat and horizontal positions, as well as Module 2 - Key Indicator 7, Module 3- Key Indicator 3, and Module 9 – Key Indicator 2.
Credit Hours:	3
Pre/Co-requisites:	WEL 228 is a pre or co-requisite.

Course Competencies

Course Competencies:	<ol style="list-style-type: none">1. Evaluate SMAW equipment, accessories and consumables to ensure proper safety and operations2. Produce fillet welds in flat and horizontal positions on carbon steel3. Produce groove welds in flat and horizontal positions on carbon steel4. Evaluate welds to ensure AWS D.1.1 standards are met
Course Sub-Competencies:	<ol style="list-style-type: none">1.1 Perform safety inspections1.2 Complete minor external repairs to SMAW equipment1.3 Set up SMAW equipment per WPS for welding on carbon steel2.1 Complete single and multiple pass fillet weld in the flat position using E6010 or E6011 electrodes on carbon steel2.2 Complete single and multiple pass fillet weld in the horizontal position using E6010 or E6011 electrodes on carbon steel2.3 Complete single and multiple pass fillet weld in the flat position using E7018 electrodes on carbon steel2.4 Complete single and multiple pass fillet weld in the horizontal position using E7018 electrodes on carbon steel3.1 Complete single and multiple pass groove weld in the flat position using E6010 or E6011 electrodes on carbon steel3.2 Complete single and multiple pass groove weld in the horizontal position using E6010 or E6011 electrodes on carbon steel3.3 Complete single and multiple pass groove weld in the flat position using E7018 electrodes on carbon steel3.4 Complete single and multiple pass groove weld in the horizontal position using E7018 electrodes on carbon steel4.1 Analyze completed welds4.2 Adjust welding technique

Assessment of Student Learning

SENSE Assessment:	<ol style="list-style-type: none">1. Written Test Score 75% minimum2. Visual Inspection Passed3. Destructive Test Passed
Recommended Third Party Certification:	American Welding Society Welder Certification Test - D.1.1 (Structural Welding Code – Sheet Steel) Note: Students participating in SMAW II may choose to test for certification at that time.

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