Prepared: Dave Holley Approved: Corey Meunier

Course Code: Title	MET822: WELDING
Program Number: Name	6232: STEAMFITTING ADV
Department:	PIPING TRADES
Semester/Term:	18S
Course Description:	This course provides apprentices with a combination of knowledge and practical skills in the operation and safe use of shielded metal arc welding equipment. Trade specific skills are developed through the preparation and welding of lap, tee and groove weld joints on steel plate and pipe in the flat and horizontal position and vertical position. Safe work practices and weld quality are stressed throughout the course and are reinforced by means of an independent reading assignment complete with a final theory test.
Total Credits:	3
Hours/Week:	3
Total Hours:	24
Essential Employability Skills (EES):	#4. Apply a systematic approach to solve problems. #5. Use a variety of thinking skills to anticipate and solve problems. #10. Manage the use of time and other resources to complete projects. #11. Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D
Other Course Evaluation & Assessment Requirements:	EVALUATION PROCESS/GRADING SYSTEM: The final course grade will be calculated using the following list of weighted factors. Factor Value Shop Assignments & Tests 100 % Grade Definition Grade Point Equivalent A+ 90 - 100% 4.00 A 80 - 89% B 70 - 79% 3.00 C 60 - 69% 2.00 D 50 - 59% 1.00

	F (Fail)49% and below 0.00 CR (Credit) Credit for diploma requirements has been awarded. S Satisfactory achievement in field /clinical placement or non-graded subject area. U Unsatisfactory achievement in field/clinical placement or non-graded subject area. X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. NR Grade not reported to Registrar`s office. W Student has withdrawn from the course without academic penalty.
Books and Required Resources:	ILM Modules by Alberta ILM
Course Outcomes and Learning Objectives:	**Course Outcome 1.** Demonstrate by means of practical shop assignments a sound working knowledge of both personal and shop safety. Potential Elements of the Performance: - identify proper eye, hand, and face protection - identify proper footwear and clothing - locate and identify shop ventilation devices - locate and identify emergency fire exits - identify the location of shut-off valves for the shop manifold gas system - understand procedures for evacuation of shop areas in case of - describe potential fire, fume and explosion hazards associated to the SMAW process Demonstrate by means of practical shop assignments a sound working knowledge of how to set up and operate a typical SMAW workstation. Potential Elements of the Performance: - identify, select and adjust welding helmets and filter lenses - identify electrode according to type, size and AWS / CSA numbering system - identify techniques for adjusting both welding current and polarity - perform a routine inspection of assigned workstations to determine the condition of cables, electrode holder and related equipment - correct deficiencies prior to the commencement of work - explain basic of SMAW joint designs and base metal edge / surface preparation - produce trial beads in the flat, horizontal and vertical positions Demonstrate by means of practical shop assignments a sound working knowledge of how to weld in the flat, horizontal and vertical positions. Potential Elements of the Performance: - perform adjustments to SMAW equipment specific to the demands of single and multi-pass fillet welds and groove welds in the flat, horizontal and vertical positions - make single and multi-pass welds on plate to pipe and pipe to pipe joints - take corrective action to eliminate the presence of weld defects - perform destructive test on fillet welds to determine weld soundness - identify and explain ASME and CSA acceptance standards for weld soundness Demonstrate by means of practical shop assignments a sound working knowledge of how to pass visual examination and destructive testing of weld samples. Potential Elements of the Performance: Describe the physical dimensions of a Vee-Groove test plate assembly including: - plate thickness, width and length - bevel angle - root opening

	Describe the acceptance criteria for the size and shape of the completed weld including: - number and size of bend test coupons - preparation and condition of bend coupons - identification of face vs root bend coupons - acceptance criteria for possible defects **Learning Objectives 1.** This curriculum that has been designed to provide apprentices with a sound working knowledge and level of skill in the safe use and operation of typical SMAW welding equipment. Itâ€™s terminal objective will be to develop within the apprentice the skill required to produce welds in the horizontal and vertical position capable of passing both visual and destructive testing .
Date:	Wednesday, April 25, 2018
	Please refer to the course outline addendum on the Learning Management System for further information.