Welding Certificate/Applied Certificate

PLAR Candidate Guide

Prior Learning Assessment and Recognition (PLAR)

Prior learning credit options at Saskatchewan Polytechnic

See Get Credit for What you Know for important information about all options to get credit for prior learning at Sask Polytech, including PLAR, transfer credit, Canadian Armed Forces credit, and equivalency credit.

How to navigate this document

This document contains links to other document sections or webpages. To return to where you were from another section in this document, press the *ALT* key and *left arrow* key at the same time. To return to this webpage from another webpage, close the other webpage or click back on the browser tab for this document.

Contents of this guide

This guide contains the following specific PLAR information and tools for this program

A. PLAR fees

Fees for PLAR challenges are set to cover our costs for consultation, assessment, and related administrative tasks. PLAR fees are non-refundable and non-transferrable.

The PLAR fees policy is subject to change for each new academic year. Please see the **Cost** section on the PLAR webpage for current fee information.

B. PLAR eligibility and options

To be eligible for PLAR for courses in this program, you must first apply for admission and be accepted into the program. You must also consult with the PLAR contact person and be approved for PLAR assessment. Proof of may be required for some applicants. English language proficiency may be required for some applicants.

Course prerequisites and corequisites

Some courses have one or more other courses that must be completed first (prerequisite) or at the same time (corequisite). See course outlines in this guide to identify any pre- or co-requisites for each course. Discuss with your PLAR contact person how to deal with courses with corequisites.

Block assessment

Some programs may assess a cluster of courses together in one block, which may save you time and effort. Ask the PLAR contact person whether there are any block assessment options in this program.

C. Dates when PLAR assessment is available

PLAR assessment for this program is available from Sept 1 to June 15 in each academic year.

All PLAR assessments must be completed by June 15 of each academic year.

D. Special directions for this program

1. **Review** the PLAR process and FAQs and the information in this guide.
2. **Self-rate** your learning for each course using the Course Outlines in this guide.
3. **Consult** with the PLAR contact person for PLAR approval. Be prepared to provide your resume, course self-ratings (see section F), and a partially completed PLAR application. If you are approved for PLAR, the contact person will sign your PLAR application and explain next steps.
4. **Apply** for admission to the program. See directions for applying.
5. **Register** for PLAR at Registration/Enrolment Services once you have signed approval on your PLAR Application Form. The PLAR fee will be added to your student account.
6. **Finalize** assessment plan with your assigned assessor**.**
7. **Complete** assessment before your PLAR registration expires.

E. PLAR contact person

Contact the person below to arrange a consultation **after** you have read this guide and general PLAR information **and** rated yourself for each course (see next session). Consultation may be by phone, online, or in person. Be prepared to provide your resume, course self-ratings, and a partially completed PLAR application. If agreement is reached to go ahead with PLAR, the contact person will sign approval on your PLAR application and explain the next steps. Admission to the program is required before you can register for PLAR.

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F. Self course outlines

Clicking on a course code below opens a page where you can rate yourself on the knowledge and skills assessed for PLAR credit. For Arts & Sciences courses, clicking on the course code opens another PLAR guide. The PLAR contact person for this program will refer you to another person to discuss PLAR for courses delivered by Arts & Sciences or another program/department.

COURSE CODE	COURSE NAME	Delivered by another department/program
COMP 172	Introduction to Microsoft Word and Excel	
INDG 100	Introduction to Indigenous Studies	Arts & Sciences
COMM 127	Fundamental Communication Skills	Arts & Sciences
EQPT 103	Fabrication Equipment	
MATH 169	Trade Mathematics	
METL 100	Metallurgy and Heat Treatment of Metals	
PRNT 106	Hand Drafting	
PRNT 107	Drawing Interpretation and Welding Symbols	
PRNT 108	Introduction to Computer Aided Design	
PROJ 102	Shop Projects	
QC 100	Quality Assurance	

COURSE CODE	COURSE NAME	Delivered by another department/program
SFTY 103	Welding Safety	
WLDR 144	Oxy-Fuel Processes Theory	
WLDR 145	Oxy-Fuel Processes Shop	
WLDR 149	Canadian Welding Bureau W47.1 Welder Qualification	
WELD 166	Oxy-Fuel and Thermal Cutting Theory	
WELD 167	Oxy Fuel and Thermal Cutting Shop	
WELD 168	Wire Feed Processes Theory	
WELD 169	Wire Feed Processes Shop 1	
WELD 170	Wire Feed Processes Shop 2	
WELD 171	Shielded Metal Arc Welding Theory	
WELD 172	Shielded Metal Arc Welding Shop 1	
WELD 173	Shielded Metal Arc Welding Shop 2	
WELD 174	Shielded Metal Arc Welding Shop 3	
WELD 175	Shielded Metal Arc Welding Shop 4	
WELD 176	Shielded Metal Arc Welding Shop 5	
WELD 177	Shielded Metal Arc Welding Shop 6	
WELD 178	Gas Tungsten Arc Welding	

COMP 172 - Introduction to Microsoft Word and Excel

You will learn the purpose and uses of a word processor and electronic spreadsheet. You will develop the basic skills of creating, editing and formatting documents and spreadsheets.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): COAP 120, COAP 172, COAP 381, COMP 120

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Create Word documents.			
2. Edit Word documents.			
3. Format Word documents.			
4. Create a spreadsheet.			
5. Use spreadsheet features.			

INDG 100 - Introduction to Indigenous Studies

You will receive an introduction to the Indigenous cultural groups within Saskatchewan. You will learn about the colonization of Indigenous peoples by the Canadian state. Your studies will help you discuss current issues and explore possible solutions.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe Indigenous nations of Saskatchewan.			
2. Explain how colonization has impacted Indigenous peoples.			
3. Discuss current issues and possible solutions.			

EQPT 103 – Fabrication Equipment

The course covers the proper use and maintenance of the hand tools and the shop equipment used in welding and fabricating shops in industry.

Credit unit(s): 4.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Use welding shop hand tools.			
2. Use layout tools.			
3. Operate power-drilling equipment.			
4. Use taps and dies.			
5. Operate metal shears.			
6. Use metal bending equipment.			
7. Use metal rolling equipment.			
8. Operate power saws.			
9. Operate grinding equipment.			
10. Operate ironworker (metal worker).			

MATH 169 - Trade Mathematics

You will learn mathematical concepts commonly used in your trade. After reviewing basic arithmetic and basic equations, you will solve various algebra problems as applied to your trade. You will perform Imperial and Metric conversions, calculate the perimeter, area, and volume of many common shapes, and use Pythagorean theorem.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): MATH 125, MATH 187

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Use arithmetic to solve trade-related problems.			
2. Use measurement systems.			
3. Solve trade-related equations and formulas.			
4. Solve geometric problems.			

METL 100 – Metallurgy & Heat Treatment of Metals

You will become familiar with the physical and chemical properties of commonly used metals in the welding trade. You will study the effect of the heating and cooling cycle involved in welding operations (with particular attention given to the heat affected zone). You will also review the use of heat to correct distortion and to change the physical properties of metals, and the classification system for identifying metal.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Identify ferrous metals.			
2. Identify non-ferrous metals.			
3. Identify structural metals.			
4. Describe the physical, chemical, and mechanical properties of metals.			
5. Describe metal heat processes.			
6. Describe the techniques to control and correct heat distortion.			

PRNT 106 - Hand Drafting

You will apply the skills learned in drawing interpretation to sketch oblique, isometric, and orthographic drawings of three-dimensional objects.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Develop an oblique sketch of an object.			
2. Develop an isometric sketch of an object.			
3. Develop an orthographic sketch of an object.			
4. Develop a basic shop drawing using manual drawing techniques.			

PRNT 107 - Drawing Interpretation and Welding Symbols

In this course you will be introduced to various technical drawings that are used in the construction and manufacturing industries. You will study the proper terminology and components of drawings. In this course students will be introduced to common structural, piping, vessel drawings and terminology. You will be introduced to weld joint design and welding symbol.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe elements of technical drawings.			
2. Describe types of prints and print format.			
3. Describe types of joints and welds.			
4. Describe common welding symbols.			
5. Interpret basic shop drawings including structural, piping and vessel.			

PRNT 108 - Introduction to Computer Aided Design

In this course you will be introduced to computer aided drawing methods used in the fabrication and welding industries. You will use computer assisted drawing software to draw parts and develop both two-and three-dimensional parts and assemblies.

Credit unit(s): 2.0
Prerequisites: PRNT 106(concurrent), PRNT 107(concurrent)
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Apply the user interface of computer assisted drawing and modeling software (CAM) to shop drawings.			
2. Develop parts using CAM software.			
3. Develop an assembly using 3D CAM software.			
4. Create a drawing with a bill of materials for an assembly using 3D CAM Software.			

PROJ 102 - Shop Projects

Constructing various welding projects will help you develop welding and steel fabricating skills.

Credit unit(s): 4.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Plan a project.			
2. Prepare materials.			
3. Complete fabrication project.			

QC 100 - Quality Assurance

You will study the role of quality and elements of quality assurance in today's welding industry.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe the principles and benefits of a quality assurance program.			
2. Describe documents typical of a quality assurance program such as: codes, standards, work procedures, weld procedures, non-conformance reports, mill test reports, heat numbers.			
3. Describe Lean Manufacturing.			

SFTY 103 - Welding Safety

Your studies will focus on general safety as it applies to the welding trade. You will learn how to use firefighting equipment, organize a shop for safe welding operation and safely transport and store welding supplies. You will also learn basic rigging techniques. You will study and receive certification in WHMIS and be introduced to the articles of Occupational Health and Safety Act that apply to the trade.

Credit unit(s): .0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe firefighting equipment and procedures.			
2. Prepare work area for welding operations.			
3. Transport welding supplies.			
4. Store welding supplies.			
5. Select protective equipment.			
6. Perform emergency first aid.			
7. Perform lay rescuer adult CPR.			
8. Practice welding shop housekeeping.			
9. Describe WHMIS.			
10. Describe Occupational Heath and Safety.			
11. Apply rigging techniques.			

WLDR 144 - Oxy-Fuel Processes Theory

You will develop the knowledge required to select, set up, operate and maintain oxy-fuel welding (OFW) equipment.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe setup, use, and shut down procedures.			
2. Describe oxy-fuel equipment and accessories.			
3. Describe oxy-fuel welding (OFW), brazing, braze welding and soldering.			

WLDR 145 - Oxy-Fuel Processes Shop

You will set up and use oxy-fuel equipment to weld, braze and solder.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Demonstrate safe setup, use, and shut down procedures of oxy-fuel welding (OFW) equipment.			
2. Weld gauge metal, flat, square groove butt joint.			
3. Perform brazing, braze welding and soldering.			

WLDR 149 – Canadian Welding Bureau W47.1 Welder Qualification

You will complete the Canadian Welding Bureau (CWB) welder qualification W47.1 assessments using the shielded metal arc welding (SMAW), gas metal arc welding (GMAW) and flux-cored arc welding (FCAW) processes for the flat groove-fillet (1GF) assessment.

Credit unit(s): 3.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe how Canadian Standards Association standard W47.1 is administered by the Canadian Welding Bureau.			
2. Interpret the qualification descriptors.			
3. Complete the SMAW 1GF assessment.			
4. Complete the GMAW 1GF assessment.			
5. Complete the FCAW 1GF assessment.			

WELD 166 - Oxy-Fuel and Thermal Cutting Theory

You will develop the knowledge required to select, set up, operate, and maintain oxyfuel cutting, plasma arc cutting and air carbon arc cutting equipment.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe safe setup, use and shut down procedures for oxy-fuel cutting equipment.			
2. Describe oxy-fuel equipment and accessories.			
3. Describe OFC, plasma arc cutting and gouging and carbon arc air gouging equipment.			
4. Describe safety concerns related to OFC plasma arc cutting and gouging and carbon arc air gouging.			

WELD 167 - Oxy Fuel and Thermal Cutting Shop

You will use freehand and guided methods for cutting mild steel. You will perform straight cuts, bevel cuts and pierce holes in the plate. You will use a guide to do straight cuts, bevel cuts and cut circles from plate. You will perform plasma arc cutting and gouging, as well as air carbon arc gouging.

Credit unit(s): 3.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Assemble oxyacetylene cutting equipment.			
2. Cut straight lines and bevels freehand on plate.			
3. Cut straight lines and bevels using guides.			
4. Cut shapes freehand.			
5. Use circle cutting attachments.			
6. Cut gauge metal freehand.			
7. Use plasma arc cutting and gouging processes.			
8. Perform air carbon arc gouging.			
9. Cut plate using the oxy-fuel machine track torch.			

WELD 168 - Wire Feed Processes Theory

You will develop the knowledge required to safely select, setup and maintain power supply components, electrodes, flux, and shielding gases.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe the components and operation of a gas metal arc welding (GMAW) welding station.			
2. Describe GMAW safety concerns.			
3. Describe the equipment and consumables of metal-cored arc welding (MCAW) and flux-cored arc (FCAW) welding and submerged arc welding equipment (SAW).			

WELD 169 - Wire Feed Processes Shop 1

You will setup and use wire feed equipment to weld mild steel with hard wire, flux cored, and metal cored wire. You will weld aluminum fillet welds.

Credit unit(s): 4.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Safely setup and operation of wire feed processes.			
2. Weld surface buildup on steel plate using forehand and backhand techniques with GMAW.			
3. Weld 14 gauge mild steel, horizontal, lap joint, fillet weld.			
4. Weld 14 gauge mild steel, vertical down, T joint, fillet weld, single pass.			
5. Weld ¼" mild steel, horizontal, T joint, fillet weld, 3-pass.			
6. Weld ¼" mild steel, horizontal T joint, fillet weld, 3-pass using Flux-Cored Arc Welding (FCAW).			
7. Weld ¼" mild steel, vertical, T joint, fillet weld, 3-pass using Flux-Cored Arc Welding (FCAW).			

WELD 170 - Wire Feed Processes Shop 2

You will weld flat and vertical up on 3/8 mild steel V-groove butt joints, and weld around structural shapes using solid and flux cored wire in the flat position.

Credit unit(s): 4.0
Prerequisites: WLDR 169(concurrent)
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Weld 3/8" mild steel, flat, butt joint, V groove weld, multi-pass.			
2. Weld 3/8" vertical, butt joint, V groove weld, multi-pass.			
3. Perform horizontal welds around structural shapes using Metal Cored Arc Welding (MCAW).			
4. Perform vertical uphill weld around structural shapes using Gas Metal Arc Welding (GMAW).			
5. Weld ¼" aluminum, horizontal, T joint, fillet weld, single pass.			

WELD 171 - Shielded Metal Arc Welding Theory

You will be introduced to the Shielded Metal Arc Welding (SMAW) process and study the types of power sources, electrical characteristics of welding circuits, and mild steel and low alloy electrodes.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): WELD 107

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe SMAW process.			
2. Describe the components and operation of a shielded metal arc welding (SMAW) welding station.			
3. Describe SMAW safety concerns.			
4. Interpret electrode application and classification.			
5. Identify common weld defects associated with the SMAW process.			
6. Discuss the ergonomic considerations involved for welding.			

WELD 172 - Shielded Metal Arc Welding Shop 1

You will develop your welding skills in the flat position and the horizontal positions.

Credit unit(s): 4.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Set up Shielded Metal Arc Welding (SMAW) equipment.			
2. Perform surface build up on plate, flat, using E7014 and E7018.			
3. Perform horizontal, T joint, fillet weld using 14 gauge using E6010/11 electrodes.			
4. Perform horizontal multi-pass fillet weld on ¼" steel using E7024 electrodes.			

WELD 173 - Shielded Metal Arc Welding Shop 2

You will perform horizontal multi-pass and vertical downhill welds using various electrodes.

Credit unit(s): 3.0
Prerequisites: WLDR 172(concurrent)
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform horizontal multi-pass fillet weld on ¼" steel using E7018 electrodes.			
2. Perform horizontal welds around structural shapes using E7018 electrodes.			
3. Perform 14-gauge vertical downhill weld, lap joint, fillet weld E6010/11 electrodes.			

WELD 174 - Shielded Metal Arc Welding Shop 3

You will perform vertical welds with the uphill progression using E7018 electrodes. You will assemble and weld a weldment for carbon arc cutting – air (CAC-A) exercise.

Credit unit(s): 3.0
Prerequisites: WLDR 173(concurrent)
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform vertical uphill single and three pass fillets on ¼" steel using E7018.			
2. Perform vertical uphill weld around structural shapes using E7018.			
3. Assemble and weld weldment for carbon arc cutting – air (CAC-A) exercise.			

WELD 175 - Shielded Metal Arc Welding Shop 4

You will be introduced to open root welding. You will practice the preparation, assembly, and welding of open root v-groove weldments in the flat position.

Credit unit(s): 3.0
Prerequisites: WLDR 174(concurrent)
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Prepare V-groove coupons for open root welding.			
2. Assemble V-groove coupons for open root welding.			
3. Perform V-groove weld in the flat position using E6010 and E7018 electrodes.			

WELD 176 - Shielded Metal Arc Welding Shop 5

You will perform the preparation, assembly, and welding of open root v-groove weldments in the horizontal position.

Credit unit(s): 3.0
Prerequisites: WLDR 174(concurrent)
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Prepare V-groove coupons for open root welding.			
2. Assemble V-groove coupons for open root welding.			
3. Perform V-groove weld in the horizontal position using E6010 electrodes.			

WELD 177 - Shielded Metal Arc Welding Shop 6

You will perform the preparation, assembly, and welding of open root v-groove weldments in the vertical position. You will perform welding in the overhead position.

Credit unit(s): 4.0
Prerequisites: WLDR 174(concurrent)
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Prepare V-groove coupons for open root welding.			
2. Assemble V-groove coupons for open root welding.			
3. Perform V-groove weld in the vertical position using E6010 and E7018 electrodes.			
4. Perform multi-pass, T-joint, fillet welds in the overhead position using ¼" mild steel.			

WELD 178 - Gas Tungsten Arc Welding

You will set-up and adjust Gas Tungsten Arc Welding (GTAW) equipment required for welding mild steel, stainless steel and aluminum. You will examine the types of electrodes, shielding gases and electrical current types used in the GTAW process. You will weld mil steel, stainless steel and aluminum.

Credit unit(s): 3.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Set up Gas Tungsten Arc Welding (GTAW) equipment for welding steel and aluminum.			
2. Select filler metals and shielding gases.			
3. Run beads on mild steel in the flat position with filler rod.			
4. Weld 14 gauge stainless steel, lap, corner, t-joint fillet welds.			
5. Weld 14 gauge aluminum, lap, corner, t-joint fillet welds.			
6. Demonstrate back purge on stainless steel flat square groove weld on a butt joint.			