

AIT Course Outline

Welder Course Outline

**FIRST PERIOD TECHNICAL TRAINING
WELDER TRADE
COURSE OUTLINE**

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE: SAFETY, TOOLS, WELD FAULTS AND OAW 56 HOURS

A. Welder Apprenticeship Training Program Orientation (120101a) 2 Hours

Outcome: *Describe the responsibilities and opportunities in the welding trade.*

1. Describe the apprenticeship training system in Alberta.
2. Identify the training profile of Welding Apprenticeship in Alberta.
3. Explain the Welder program outline learning outcomes and objectives.
4. Describe the responsibilities for the Contract of Apprenticeship by the apprentice, employer and Alberta Apprenticeship and Industry Training.
5. Identify industrial, commercial and construction fields that provide employment opportunities for welders.
6. Discuss the contents of the apprenticeship training Record Book.
7. Demonstrate the ability to complete an acceptable resume.

B. Safety Guidelines (120101b) 4 Hours

Outcome: *Follow O H & S and WHMIS guidelines.*

1. Describe applications of the Workers' Compensation Act in the work place.
2. Demonstrate an ability to locate and interpret sections of the Occupational Health and Safety Act, General Safety Regulations as they apply to welding.
3. Explain the WHMIS program.
4. Describe the procedure for welding or cutting in confined spaces or on potentially dangerous enclosures.

C. Welding Safety (120101c) 4 Hours

Outcome: *Apply safe work practices and procedures when using welding and cutting equipment.*

1. Identify physical hazards that are common to welding and cutting equipment.
2. Identify use of personal protective equipment for welding and cutting operations.
3. Identify fire hazards and methods of fire.
4. Explain the hazards involved with welding fumes and gases.
5. Identify welding fume ventilation methods.
6. Identify use of personal protective equipment for hazardous and toxic materials.
7. Explain the effects of electricity and precautions used to prevent injury.

First Period Technical Training - Welder

Learning Outcomes

Upon successful completion of Section One **Safety, Tools, Weld Faults and OAW** - you will be able to

1. Describe the responsibilities and opportunities in the welding trade.
2. Follow O H & S and WHMIS guidelines.
3. Apply safe work practices and procedures when using welding and cutting equipment.
4. Use hand tools.
5. Use power tools.
6. Identify the cause of faults in welds and methods for their prevention.
7. Assemble oxy-fuel equipment.
8. Perform oxy-fuel welding, braze welding and brazing.
9. Perform oxy-fuel cutting.
10. Apply safe materials handling procedures.

Upon successful completion of Section Two – **SMAW One** - you will be able to

1. Identify SMAW equipment.
2. Select mild steel electrodes for SMAW.
3. Identify basic joints and weld types.
4. Perform surface welds in the flat position.
5. Perform 1F welds using SMAW.
6. Perform 2F welds using SMAW.
7. Perform 3F welds using SMAW.
8. Perform 1G welds using SMAW.
9. Perform 1GF welds using SMAW.
10. Gouge and cut using carbon arc cutting with air process and observe plasma arc cutting.

Upon successful completion of Section Three – **GMAW, FCAW and SAW** - you will be able to

1. Select GMAW equipment.
2. Select GMAW consumables and apply safe work practices.
3. Set up, maintain and troubleshoot GMAW equipment.
4. Select and use FCAW equipment and consumables.
5. Select SAW equipment and consumables.
6. Perform surface welds in the flat and horizontal positions on mild steel plate.
7. Perform 1F position welds on mild steel.
8. Perform 2F position welds on mild steel.
9. Perform 3F position welds on mild steel.
10. Perform 1G position welds on mild steel.
11. Perform 2G position welds on mild steel.
12. Perform 3G position welds on mild steel.
13. Perform surface welds in the flat and horizontal positions on mild steel.
14. Perform 1F position welds on mild steel.
15. Perform 2F position welds on mild steel.
16. Perform 3F position welds on mild steel.
17. Perform 1GF position welds on mild steel.