

Semiautomatic Welding Production Operator *A Guide to Course Content*

Semiautomatic Welding Production Operators work in manufacturing facilities, primarily with GMAW and FCAW processes.

Training Requirements: To graduate from the apprenticeship program, an apprentice must successfully complete the required technical training and compile enough on-the-job experience to total at least 1800 hours each year. Total trade time required is 3600 hours and at least 2 years in the trade.

There is one level of technical training delivered by Saskatchewan Polytechnic in Moose Jaw and at Saskatchewan Polytechnic in Saskatoon:

Level One: 8 weeks

The information contained in this pamphlet serves as a guide for employers and apprentices. The pamphlet briefly summarizes the training delivered at each level of apprenticeship training. An apprentice spends approximately 10% of the apprenticeship term in a technical training institute learning the technical and theoretical aspects of the trade. The hours and percentages of technical and practical training may vary according to class needs and progress.

The content of the technical training components is subject to change without notice.

8 weeks

Welding Safety

- firefighting equipment and procedures
- preparing work area for welding operations
- transporting welding supplies
- storing welding supplies
- selecting protective equipment
- practicing welding shop housekeeping
- WHMIS
- Occupational Health & Safety
- basic rigging techniques
- lifting equipment and hand signaling for cranes

Gas Metal Arc Welding (GMAW)

- set up GMAW equipment for mild steel
- selecting types of metal transfer
- 1/4" plate – single and multiple-pass beads in flat and overhead positions
- 1/4" plate – single and multiple-pass fillet welds in horizontal and vertical positions
- 3/8" plate – single and multiple-pass fillet welds in flat position
- 3/8" plate – single and multiple-pass butt welds in flat and vertical positions
- 16 gauge – horizontal and vertical downhand lap fillet welds

Cutting Processes

- oxy-fuel cutting processes and techniques
- assembly and use of oxy-acetylene cutting equipment
- 3/8" plate – 90° and bevel cuts freehand
- 3/8" plate – 90° and bevel cuts using guides
- 3/8" plate – cutting shapes freehand
- 3/8" plate – cutting using circle-cutting attachments

Plasma Arc Cutting

- safety, assembly and operation
- 3/8" plate – 90°, bevel and hole cuts
- 16 gauge – 90° and hole cuts

Air Carbon Arc Cutting and Gouging

- safety, assembly and operation
- 3/8" plate – cutting and gouging

Metallurgy and Heat Treatment of Metals

- identifying ferrous metals
- identifying non-ferrous metals
- identifying structural metals
- physical, chemical and mechanical properties of metals
- metal heat processes
- techniques to control and correct heat distortion

Blueprint Interpretation

- developing working drawings
- developing blueprints
- interpreting welding symbols
- set-up of weld joints
- calculating materials