

My Career in Welding Engineering



With a *Certificate in Welding Engineering*, graduates may have the possible *career options* of the following:

- Furniture Maker
- Welder & Frame Cutter
- Sheet-Metal Worker
- Structural Metal Preparers & Erectors
- Blacksmith/Hammer Smith & Forging Press Workers
- Toolmakers, metal pattern Makers & Metal Markers
- Machine Tool Setters and Setter-Operators NB: Although the job titles may vary, the tasks executed are very similar from one title to another and hence combined.

Welding Professionals

The job descriptions and job specifications for these careers are as follows:

Welders and Frame Cutters, Sheet-Metal Workers, Structural Metal Preparers and Erectors

Career Overview

Carry out the welding and cutting of metal parts, make and repair sheet metal and erects metal structures and fixtures.

Typical Duties:

Sheet-Metal Workers

- Examine drawings and specifications to determine job requirements.
- Mark required measurements on sheet metal for cutting and shaping.
- Cut sheet metal according to marks using hand or power tool.
- Use hand machine tools to bend, roll, press or beat cut sheet metal.
- Assemble prepared parts and join by bolting, welding or soldering.
- Finish product by grinding, filing, cleaning and polishing.
- Install and repair sheet metal parts of vehicles and other metal articles.

Welder and frame cutter (arc welders)

- Select appropriate welding equipment such as electric arc, gas torch.
- Connect wires to power supply or hoses to oxygen, acetylene, electric arc or other source and adjust control to regulate gas pressure and rate of flow.
- Prepare surface and guide electrode or torch along surface to be welded or melt alloy or solder into joints.
- Clean and smooth weld and maintains welding equipment.

Structural metal preparers and welders

- Set up hoisting equipment for raising and placing structural steel members.
- Direct hoisting and positioning of girders, columns and other metal parts and checks.
- Verify alignments using plumb-rule and level.
- Arrange for, or undertake bolting or welding of metal parts.
- Cut and weld steel members to make alterations using oxyacetylene welding equipment.

Blacksmiths, Hammersmith and Forging Press Workers, Toolmakers, Metal Pattern Makers and Metal Makers, and Machine Tool Setters and Setter-Operators

Career Overview

Form steel and other metals to make, maintain and repair various metal products, tools and equipment.

Typically Duties:

Blacksmiths, Hammersmith and Forging Press Workers

- Set up and operate closed-die drop hammer or power press.
- Align and bolt specified dies on ram and anvil of press.

Typical Duties Cont'd:

- Heat metal stock in forge or furnace and position heated metal on anvil or other surface.
- Hammer, bend and cut metal stock into specified shape and measurements using anvil, hammers and other hand-tools.
- Temper and harden forged pieces as required; fit and secure horseshoes.

Toolmakers, Metal Pattern Makers and Metal Makers

- Make, maintain and repair die, jigs, gauges and fixtures, using hand tools and various kinds of machine tools.
- Fit and assemble parts to make and repair jigs, fixtures and gauges
- Make, fit, assemble, repair, and install lock parts and lock;
- Make and repair metal patterns for preparation of foundry moulds.
- Lay out lines and reference points on metal stock to guide other workers who cut, turn, mill, grind or otherwise shape metal.
- Perform other related tasks; may supervise and train other workers and apprentices.

Machine Tool Setters and Setter-Operators

- Set one or more types of machine tools for operators to produce metal articles in standardized series.
- Set and operate a variety of machine tools.
- Set and operate a particular type of metalworking machine, such as lathe, milling, planning, boring, drilling, grinding, or honing machine, including multi-purpose numerically controlled metal-working machines.
- Perform various related tasks; may supervise and train other workers, including apprentices.

Furniture Maker: make furniture of different materials such as pipe tubing and wrought iron using welding equipment and other hand-tools

Work Environment

Work may be on a construction site, metal shop or for a company that manufactures steel and plate work, boilers/tanks, heavy machinery, or repairs to aircrafts and ships and other metal products. Work may be as a welding contractor, in a welding shop or self-employed. A standard work week may be expected with the occasional need to work overtime. The workshop may be noisy and dusty with temperature fluctuations. Some work maybe in close quarters in uncomfortable positions. Senior craftsmen may be asked to supervise apprentices. Some technicians choose to specialize in custom fabrication or other areas of welding.

Qualifications and License

Technical certification is required although in some instances on-the-job training may be provided. However, you may obtain such certification via the appropriate technical area at the SJPP, through City and Guilds Certifications or via C/NVQs level 1 & 2 in Welding.

Essential Qualities and Skills

- ❖ Manual dexterity and physical (extend) flexibility
- ❖ Written comprehension
- ❖ Near vision and visualization abilities
- ❖ Arm-hand steadiness and wrist-finger speed
- ❖ Multi-limb coordination and control precision
- ❖ Information ordering and prioritizing skills
- ❖ Mathematical and numeracy skills

References

Barbados Standard Occupational Classification, Minor Groups 721, 722, 742 sections 7211-7214, 7221-7224 and 7421 7221-7224, pages 161-162, 163-165& 182 respectively - Government of Barbados, Ministry of Employment, Labour Relations and Community Development (1990)

Barbados Public Service (Qualifications) Order 2001, Government Printer, Bay Street, St. Michael, Barbados

Barbados' Civil Establishment (General) Order, 2005, The Government of Barbados

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