WELDING TECHNOLOGY, CERTIFICATE

Program Code: CC.WELDINGTECH

This program prepares students for entry into these industries: fabricated structural metal products, motor vehicles and equipment, construction and heavy construction, transportation equipment, ship and boat building and repair, aircraft and parts, self-employment and miscellaneous fabricated metal products.

CCC's welding instructors are American Welding Society (AWS) certified professionals. The program's curriculum is based on the AWS national standard for entry level welders. Course work focuses on the knowledge and skills to perform:

- Fillet welds and groove welds using:
  - Shielded metal arc welding (SMAW)
  - Gas-metal arc welding (GMAW)
  - Flux-core arc welding (FCAW)
  - Gas-tungsten arc welding (GTAW)
  - Steel, stainless steel and aluminum
  - A variety of different electrodes;
- Plasma arc cutting (PAC), air carbon arc cutting (CAC-A) and gouging, manual and automatic oxy-fuel cutting (OFC and OFC-Track Burner) processes;
- Knowledge of materials science and welding theory;
- Print reading, inspection, quality, safety and shop practices;
- Fabrication techniques, including job cost calculations, layout, sketching, bills of material, fitting and cutting welding applied to real projects designed by industry partners.

Short-term Training

For students who need a quick-entry strategy into the workforce, an individualized education and employment plan can be created that concentrates the knowledge and skills necessary to start or change a career path. Please see a faculty advisor for more information.

For information contact Dustin Bates, 503-594-3973, dustinb@clackamas.edu, or the Automotive and Welding Department, 503-594-3047

Outcomes

Related Instruction Outcomes

Computation

- 1 course - MTH-050 Technical Mathematics I
- Use appropriate mathematics to solve problems.

Communication

- 1 course- WR-101 Workplace Writing
- Read actively, think critically, and write purposefully and capably for professional audiences.

Human Relations

- 3-4 credits - Recommended: COMM-100Z Introduction to Communication
- Engage in ethical communication processes that accomplish goals.

Program Outcomes

Upon successful completion of this program, students should be able to:

- work safely in an industrial environment around machinery, power tools, and chemicals;
- set-up, operate, and make adjustments to welding equipment as necessary to demonstrate quality workmanship that meets current American Welding Society (AWS) and industry standards;
- demonstrate the ability to set up and operate oxy fuel cutting equipment, carbon arc cutting and gouging and plasma cutting equipment safely and skillfully;
- apply basic knowledge of blueprint reading to fabricate projects as assigned;
- complete welding projects such as fillet welds and groove welds in all positions with Gas Metal Arc Welding (GMAW), Shielded Metal Arc Welding (SMAW), Flux Core Arc Welding (FCAW), and Gas Tungsten Arc Welding (GTAW) that will meet visual inspection criteria based on AWS codes and industry standards;
- perform advanced welding on materials such as stainless steel and aluminum with Gas Tungsten Arc Welding (GTAW);
- recognize and be able to repair common welding defects according to AWS and industry standards.

Requirements

First Term		Credits
MTH-050	Technical Mathematics I [1]	4.00
WLD-100	Welder's Print Reading I	3.00
WLD-111 or WLD-111A ***and*** WLD-111B	Shielded Metal Arc Welding (Stick) or Shielded Metal Arc Welding (Stick) ***and*** Shielded Metal Arc Welding (Stick)	8.00
	Credits	**15**
Second Term		
MFG-103	Machining for Fabrication & Maintenance	3.00
WLD-113 or WLD-113A ***and*** WLD-113B	Gas Metal Arc Welding/Flux Core Arc Welding (Wirefeed) or Gas Metal Arc Welding/Flux Core Arc Welding (Wirefeed) ***and*** Gas Metal Arc Welding/Flux Core Arc Welding (Wirefeed)	8.00
WR-101	Workplace Writing [1]	4.00
	Credits	**15**
Third Term		
WLD-110	Welder Certification	4.00
WLD-115 or WLD-115A ***and*** WLD-115B	Gas Tungsten Arc Welding (GTAW) or Gas Tungsten Arc Welding (GTAW) ***and*** Gas Tungsten Arc Welding (GTAW)	8.00
Human Relations requirement		3.00-4.00

COMM-100Z	Introduction to Communication (Recommended)	
	Credits	**15-16**
	Total Credits	**45-46**

[1] Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty or academic advisor for the transfer requirements of the specific advanced program or school.

Careers

Career opportunities include:

- welding
- fabrication
- construction
- production welding
- sheet metal fabrication