



GENERAL INFORMATION

The welding program at EvCC is designed to meet the expanding needs of the many occupations that utilize welding. The welding department provides a balanced course of study, including hands-on learning experiences, technical information and general education courses. Emphasis is on welding, torch burning techniques, and fabrication techniques, with opportunities for attaining these skills in a lab setting.

The welding program is competency based and is divided into separate skill blocks. Each skill block is based on a 100 hour period of laboratory time. An average student should be able to complete a skill block within that time. As a student completes a skill block and demonstrates mastery of those skills by passing an exit test for that skill block, he/she can receive credit for it and move to the next level of training. This permits students to move through the program at their own rate. All welding courses are available as either day or evening classes. Specialty courses of study may be arranged through a welding instructor. Welding labs are limited to twenty (20) participants.

CAREER OPPORTUNITIES

Today, welders use automated as well as manual methods of joining metal parts through a process of heating the metal pieces and then melting and fusing them together to form a permanent bond. Frequently, they plan their work based upon drawings and speculation figures. Knowledge of blueprint reading is important, along with knowledge of the properties of different materials, knowledge of applied techniques and expected results of heating and melding of various types of metals. These skills and competencies are well addressed by EvCC's welding program.

Good eyesight, hand-eye coordination, manual dexterity and the ability to concentrate on detail work for long periods and work in awkward positions, at times, are important traits for a person considering this career.

Welders may find employment in places such as: manufacturing and repair shops, shipbuilding yards, the aerospace industry, construction of buildings, bridges and other structures; also joining pipes for pipelines, power plants, refineries and the high tech sector using CNC controlled equipment. Welders can advance to more skilled jobs with additional training and experience. Opportunities exist to become supervisors, inspectors and instructors.

OPTIONS

Technical Certification – Welding – Designed for those wishing to enter the workforce as quickly as possible with certification in specific skills. Students acquire specific skills through experience and/or classes. Practice sessions are available in 24-hour blocks of time through EvCC's **Welding 225** course for 2 credits. Individuals having the welding skills necessary to weld to the standards required by the Washington Association of Building Officials (WABO) may participate in EvCC's certification testing service. WABO certification is available in the following skills:

- ◆ SMAW Stick electrode – unlimited plate
- ◆ FCAW Flux cored arc welding – unlimited plate
- ◆ FCAW Shop
- ◆ GMAW (Hard wire MIG) Field and Shop
- ◆ SMAW (Light gauge)
- ◆ GMAW (Light gauge)
- ◆ GTAW (TIG) - unlimited
- ◆ FCAW (Light gauge)
- ◆ GTAW (Light gauge)
- ◆ SMAW (Pipe)
- ◆ FCAW (Pipe)

Associate in Technical Arts (ATA) Degree in Welding

The ATA is a non-transferable technical degree that includes emphasis in developing professional welding and fabrication skills as well as providing a grounding (13 credits) in general studies. This program is approximately two years in length for full-time involvement. It is a total of 90 credits.

Program Certificate

This Certificate includes many of the same Welding and Fabrication classes as the ATA Degree. Completion of this Certificate totals 43 credits of Welding classes. Completion time is approximately 4 quarters with a full-time course load.

Job Improvement or Personal Interest Courses in Welding

Special welding courses for those people with a personal interest in welding or who are already involved in welding and need specific skill upgrading for job improvement.

Advanced Manufacturing Technology (AMT)

The AMT degree includes classes that focus on specific engineering technology skills used in the manufacturing sector. See the separate curriculum guide for *AMT: Welding and Fabrication*.

COSTS

Besides tuition, there are some additional costs:

- **Book/lab fees**

Cost is dependent on the courses taken. Textbooks are usually under \$100 for the entire program. Lab fees are approximately \$350 for the complete program. For courses taken outside of the formal program, costs may differ.

- **Safety Equipment/Tools**

A welding student should expect to spend approximately \$200 during the course of the program on the required tools and safety equipment. A student in the Fabrication curriculum may have a larger requirement.

GETTING STARTED AT EVCC

Our Enrollment Services office provides information about application, advising, orientation and registration for new and continuing students. Though advising is voluntary, all prospective and current students are invited to contact the Enrollment Services Office or the Counseling Advising and Career Center if they would like to speak one-to-one with an advisor about getting started. Contact:

- Enrollment Services, Jackson Center 425-388-9219
admissions@everettcc.edu
- CACC, Third Floor, Parks, 425-388-9263.

ADVISORS

Permission of the instructor is required before entering any welding courses. You may contact the advisor listed below.

- Dan Minzel, Monte Cristo 110, 425-388-9447,
dminzel@everettcc.edu
- Rick Brydges, Monte Cristo 110, 425-388-9453,
rbrydges@everettcc.edu
- Owen Owens, Monte Cristo 110, 425-388-9449,
oowens@everettcc.edu

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CERTIFICATE IN WELDING

This checklist is targeted at students with an interest in Welding. It should be maintained by the student while at Everett Community College. The quarter before expected completion, this checklist should be submitted by the student, with a diploma application, to the Enrollment Services Office.

Student Name: _____ Advisor Signature: _____ Date: _____

Course Number	Course Title	Credits	Quarter Completed	Grade
LECTURE CLASSES (Minimum 8 credits from approved list)				
WELD 150	Blueprint Reading	5	_____	_____
WELD 152	Welding Base Materials: Processes & Procedures	3	_____	_____
FABRICATION CLASSES (Select a minimum of 15 credits from the following classes)				
WELD 111	Basic Layout	2	_____	_____
WELD 210	Heavy Plate Fabrication	5	_____	_____
WELD 211	Sheet Metal Fabrication	5	_____	_____
WELD 212	Pipefitting and Pipe Systems Fabrication	5	_____	_____
WELD 213	Practical Fabrication and Advanced Welding Techniques	5	_____	_____
WELD 285	Computer Numeric Controlled (CNC) Plasma Cutting	5	_____	_____
WELD 295	Work Experience Internship	2-5	_____	_____
WELDING CLASSES (Select a minimum of 20 credits from the following credits)				
WELD 190	Oxyacetylene	5	_____	_____
WELD 191	Basic Arc	5	_____	_____
WELD 192	Advanced Arc	5	_____	_____
WELD 193	Basic Pipe	5	_____	_____
WELD 194	Gas Tungsten Arc Welding	5	_____	_____
WELD 195	Gas Metal Arc/Flux Cored Arc Welding	5	_____	_____
		TOTAL 43 credits	Minimum 2.0 GPA Required	

NOTE: Actual classes may vary from the above described outline with Instructor's approval and permission. The total credits for the Program Certificate will always remain at 43.

EvCC Welding Courses

WELD 111

Basic Layout

Baseline radial cylindrical and triangulation layout techniques used to develop flat pattern, pipe intersections, and conical shapes. Flat pattern layout and basic lofting techniques covering use of base line, radial, cylindrical, and triangulation layout development for small units. May be repeated one time for credit.

WELD 150

Blueprint Reading for Industry

Overview of engineering drawing symbols used on blueprints and techniques used in their interpretation. Course is heavily inclined toward machine and fabrication trades rather than construction. May be repeated one time for credit. Prerequisites: Basic arithmetic skills or concurrent enrollment in [MATH 031](#).

WELD 151

Carbon Steel Metallurgy for the Trades

Metallurgical terms as applied to carbon steels, properties of metals, melting and solidification of metals including phase changes, weld bead metallurgy and heat-affected zones. Alloying elements and their effects on weld material. Distortion of materials and its control. May be repeated one time for credit.

WELD 152

Welding Base Materials: Processes and Procedures

Base material classification systems, welding processes and procedures. May be repeated one time for credit.

WELD 153

Non-Ferrous Metallurgy for the Trades

Basic metallurgy of stainless steel, cast iron, and aluminum. Heat treatment of non-ferrous materials, non-ferrous material designation systems, filler material designation systems, and welding procedures for aluminum and stainless steel. May be repeated one time for credit.

WELD 190

Oxyacetylene

Principles and techniques of oxyacetylene welding, brazing, and flame cutting to develop entry-level skills required by industry. May be repeated two times for credit. Prerequisites: Good eyesight and good hand/eye coordination with both hands. Corequisites: Concurrent enrollment in [WELD 150](#) and [WELD 151](#) recommended.

WELD 191

Basic Arc

Principles and techniques of basic manual shielded metal arc welding as required to demonstrate skills necessary to make fillet welds acceptable to industry standards in all positions. May be repeated two times for credit. Prerequisites: Good eyesight and hand/eye coordination. [WELD 150](#), [WELD 151](#), [WELD 152](#), [WELD 153](#) or concurrent enrollment recommended.

WELD 192

Advanced Arc

Continuation of WELD 191. Development of welding skills to level required for code standards and certification. May be repeated two times for credit. Prerequisites: [WELD 191](#) with grade of C or higher, or S grade.

WELD 193

Basic Pipe

Principles and techniques of pipe welding using manual and semi-automatic arc processes, materials, joint preparation, filler metal selection, and acceptable shop practices. May be repeated two times for credit. Prerequisites: Certification or instructor's permission.

WELD 194

Gas Tungsten Arc Welding

Fundamentals and techniques used in gas tungsten arc welding process needed to weld steel, stainless steel, and aluminum materials in all positions. May be repeated two times for credit. Prerequisites: [WELD 190](#) or instructor's permission.

WELD 195

Gas Metal Arc/Flux Core Arc Welding

Principles and techniques of gas metal arc and flux core arc welding processes on mild steel, stainless steel and aluminum. May be repeated one time for credit.

WELD 210

Heavy Plate Fabrication

Introduces the development of complex structures, fitting processes and procedures of heavy plate fabrication. Uses standard layout techniques and set-up and operation of press brake. May be repeated one time for credit.

WELD 211

Sheet Metal Fabrication

Sequences and methods of light gauge metal fabrication. Students plan and produce parts using forming machinery, joining and forming processes. May be repeated one time for credit.

WELD 212

Pipefitting and Pipe Systems Fabrication

Presents basic pipefitting. Students will fabricate various pipe systems and manifolds working from blueprints. May be repeated one time for credit.

WELD 213

Structural Steel Fabrication and Field Welding

Sequences and methods of structural steel fabrication and assembly. Students plan, fabricate and join various structural shapes and formed parts into a completed project. Students learn and apply the techniques of out-of-position welding where vision and accessibility are limited. May be repeated one time for credit.

WELD 225

Welding Skills Building

Designed for the student who is seeking practice time prior to taking a state welding certification test or for the student seeking to improve current welding skills through additional lab time. May be repeated two times for credit. Prerequisites: Instructor's permission.

WELD 285

Computerized Torch Cutting

Programming and use of computerized cutting system using AutoCAD. May be repeated one time for credit.

WELD 295

Work Experience Internship

Provides students with a safe, supervised work environment to apply their welding and fabrication skills, fostering professional growth and self-confidence in the welding industry. May be repeated two times for credit. Prerequisites: Instructor's permission.