

WELDING TECHNOLOGY

DEGREES, CERTIFICATES AND AWARDS

Associate in Science Degree (A.S.)

Certificate of Achievement

DESCRIPTION

The Imperial Valley College Welding Technology curriculum is designed to educate, train, and prepare our students to meet the minimum knowledge and skill standards for entry level welders established by the American Welding Society. The emphasis of our teaching and learning activities is to master the theory, technology, applied science, and practical skills that are the foundation of a rewarding career in Welding Technology. All welding courses are a combination of the many skills, aptitudes, and knowledge identified as necessary competencies for welding personnel. Courses include the core competencies for welding personnel which are; Industrial Safety, Oxy-Fuel Welding and Cutting, Weld Symbols, Shielded Metal Arc Welding ("Stick") on plate and pipe, Gas Tungsten Arc Welding ("TIG") on plate and pipe, Plasma Arc Cutting, Air Carbon Arc Cutting, Flux Cored Arc Welding, and Gas Metal Arc Welding ("MIG").

PROGRAM LEARNING OUTCOMES

1. Explain the hierarchy of "Hazard Control" in a Welding Environment and how this relates to Occupational Safety and Health, to include; (1) Identification of Hazards, (2) Elimination of Hazards, (3) Administration of Hazards, (4) Engineering Controls, and (5) Personal Protective Equipment.
2. Demonstrate an understanding of Oxyacetylene Welding and Cutting to include the proper and safe procedures for set-up and use of related equipment.
3. Define and explain the Physical and Mechanical properties of metals and how these influence the development of Performance Qualification Records (PQR) and Welding Procedure Specifications (WPS) related to welding processes and applications.
4. Explain and Demonstrate the proper set-up and use of all related components used in Gas Tungsten Arc Welding (GTAW).
5. Using the prescribed specifications and accepted parameters, apply the predetermined inspection criteria to assess "acceptable" weld samples for Destructive and Nondestructive testing.
6. Explain and demonstrate an understanding of the equipment used for Shielded Metal Arc Welding (SMAW) and demonstrate the manipulative skills necessary for producing welds in all positions.
7. Safely prepare (cut, grind, and layout) and complete (open-root, multiple welds with E-6010) a "pipe" weld joint in the 5G position per the established Welding Procedure Specification (WPS).
8. Demonstrate an understanding of Welding Codes, explain the welding criteria in the Welding Codes, and demonstrate the necessary Manipulative Skills to apply the criteria from the applicable welding codes (AWS, API, and/or ASME).
9. Explain and Demonstrate an understanding of Flux Cored Arc Welding (FCAW) equipment and procedures necessary for the safe and proper set-up of the FCAW equipment and for the completion of the assigned weld joints per the established WPS.

ASSOCIATE DEGREE AND CERTIFICATE OF ACHIEVEMENT PROGRAMS

The Associate in Arts (AA) or the Associate in Science (AS) Degree involves satisfactory completion of a minimum of 60 semester units with a C average or higher, including grades of C in all courses required for the major, and fulfillment of all IVC district requirements for the associate's degree along with all general education requirements. The degree provides a sound basis for transfer to upper division institutions for additional degrees or for higher vocational preparation. To be eligible to receive an Associate Degree the student must complete the requirements for the major, the District requirements for an Associate Degree, and the General Education requirements. In addition students must maintain a minimum grade point average and meet the minimum grade requirements of their program. Detailed information is available in the college catalog.

The Certificate of Achievement program is designed for students with personal or occupational goals who wish early employment. To qualify for the Certificate, a student must satisfy the following requirements: (1) complete all courses listed for a particular certificate; (2) achieve a "C" average (2.0 GPA) for all courses used to complete the certificate; and, (3) file a Certificate Application form with Admissions and Records by the appropriate deadline(s) identified on the application.

CAREER OPPORTUNITIES

- Assembly Worker
- Auto Body Worker
- Structural and Iron Work Welder
- Machine Tool Operator
- Sheet Metal Worker
- Tool and Die Maker
- Welder

Industry fields:

- Aerospace and Manufacturing
- Automotive and Transportation
- Pipe and Vessel Welding
- Fabrication and Maintenance
- Petroleum and Energy
- Shipbuilding and Heavy Industry

Gainful Employment: Federal regulations require institutions to provide students with Gainful Employment information for specific certificate programs offered at IVC. Please click on our Programs of Study link to view the information for each certificate program:
<http://www.imperial.edu/courses-and-programs/programs-of-study/>



TRANSFER PREPARATION

Courses that fulfill major requirements for an associate degree at Imperial Valley College may not be the same as those required for completing the major at a transfer institution offering a bachelor's degree. Students who plan to transfer to a four-year college or university should schedule an appointment with an IVC Counselor to develop a student education plan (SEP) before beginning their program.

Transfer Resources:

www.ASSIST.org – CSU and UC Articulation Agreements and Majors Search Engine

www.CSUMentor.org – CSU System Information

www.universityofcalifornia.edu/admissions/index.html - UC System Information

www.aiccu.edu – California Independent Colleges and Universities, Association of

<http://wiche.edu/wue> - Western Undergraduate Exchange Programs

FINANCIAL AID

Paying for the cost of a college education requires a partnership among parents, students and the college. As the cost of higher education continues to rise we want you to know that IVC offers a full array of financial aid programs – grants, work study, scholarships, and fee waivers (we do not participate in the federal loan programs). These programs are available to both full and part time students who are seeking a degree or certificate. For those who qualify, financial aid is available to help with tuition, fees, books and supplies, food, housing, transportation, and childcare. Please log onto our website for additional information: www.imperial.edu/students/financial-aid-and-scholarships/

WELDING TECHNOLOGY

ASSOCIATE DEGREE PROGRAM

WELDING TECHNOLOGY MAJOR – A.S. DEGREE

Twenty-two (22.0) units required for the major.

ALL COURSES FOR THIS MAJOR MUST BE COMPLETED WITH A MINIMUM GRADE OF "C" OR BETTER.

I. Required courses for the major (22.0 units)

WELD 100	Welding Technology	5.0
WELD 101	Gas Tungsten Arc Welding on Plate	3.0
WELD 102	Arc Welding on Plate	5.0
WELD 103	Arc Welding on Pipe	3.0
WELD 104	Gas Tungsten Arc Welding on Pipe	3.0
WELD 105	Flux Core Arc Welding Techniques	3.0
Total Major Units		22.0
IVC Graduation Requirements and GE Pattern:		30.0
Electives (as needed to reach 60 degree applicable units)		
Total Maximum Units:		60.0

CERTIFICATE PROGRAM

WELDING TECHNOLOGY CERTIFICATE

Twenty-two (22.0) units required for the certificate.

ALL COURSES FOR THIS CERTIFICATE MUST BE COMPLETED WITH A MINIMUM GRADE OF "C" OR BETTER.

I. Required courses for the certificate (22.0 units)

WELD 100	Welding Technology	5.0
WELD 101	Gas Tungsten Arc Welding on Plate	3.0
WELD 102	Arc Welding on Plate	5.0
WELD 103	Arc Welding on Pipe	3.0
WELD 104	Gas Tungsten Arc Welding on Pipe	3.0
WELD 105	Flux Core Arc Welding Techniques	3.0
Total Certificate Units		22.0
Total Maximum Units:		22.0