IMPERIAL VALLEY COLLEGE

Applied Sciences Division
Welding Technology
380 East Aten Road, Imperial, CA 92251

Course Title	Welding Technology 100
Credits and Units	5.00 Credits
Semester	Fall 2013
CRN	10911
Lecture/Discussion	Monday night, 0630-0940 pm Room 810
Laboratory	Tuesday and Wednesday nights 0630-0930 pm Room 1201
Text Book	Welding Principles and Applications, 4th Edition William A Bowditch, Kevin E. Bowditch and Mark A. Bowditch
Teacher (Primary)	Mr. Fred Rivera
Electronic mail	(fred.rivera@imperial.edu)
Telephone number	(760) 353-2706 (between 0500-6000 pm)

1. **Attendance.**

19 August 2013	Class start date
19 August – 7 December	Attendance days
Student responsibility	Parking/Ticketing violation
3 September	Labor Day campus closed
31 August	Last date to enroll
8 October	Oral presentation
12 November	Veterans Day campus closed
22-24 November	Thanksgiving campus closed
9 November	Deadline to drop
5 December	Final Examination
7 December	Class end date

2. **Course Description**

The student will be exposed to a complete basic study of welding technology up to include Health and Safety, Fire Protection and Electrical Safety. The student practices techniques for skill development in shielded metal arc welding (SMAW), gas tungsten arc welding (GTAW), flux cored arc welding (FCAW), soldering/brazing welding (S/BW), and oxygen-acetylene (OXY-ACE) welding and cutting processes.

In addition, American Welding Society, Code of Federal Regulations (CFRs), specifications and welding standards will be discussed during the course of this semester.

3. Course Content:

This course provides the student with a thorough technical understanding of arc welding, welding safety, arc welding power sources, electrode classifications and blue print reading/interpretation. It also provides on-hand training to develop the skills necessary to create high-quality shielded metal arc welds in all four positions on mild steel from 3/16 inch to 1/2 inch steel plate, single and multiple passes, using mild steel plates, E-6010-11, E-7018 electrodes, utilizing direct current electrode positive.

4. Teaching Materials.

Teaching materials, assignments and presentations will correspond to written examinations, laboratory assignments, class room presentation and Final Examination.

Presentations and familiarizations are conducted by reviewing handbooks and publications published by the American Welding Society and Health and Safety Standards.

5. **Welding Technology Student Learning Outcomes.**

1. Explain the legal responsibilities of Employers, Supervisors, and Welding Personnel with regard to right to know regulations. (ILO1, ILO3).

2. Explain the hierarchy of Hazard Control in a welding environment to include; Hazard Identification, Hazard Elimination, Administration Controls, Hazard Engineering Controls, and Applicable Personal Protective Equipment (PPE) ILO1, ILO2, ILO3).

3. Perform Oxy-Acetylene welding and cutting procedures safely to include; safe set-up of OFW and OFC equipment. (ILO1, ILO2, ILO3).

4. Complete a written report based on information collected from a Technical Literature Review of Welding Technology and its many uses in our world economy (ILO1, ILO4, ILO5).

5. Define the physical and mechanical properties of steel and how these are influenced by Shield Metal Arc Welding (SMAW). (ILO1, ILO2).

6. Regulations and Standards.

Further, students are made aware of other organizations. The most common is the American Welding Society and its associated codes:

a). AWS D1.1 Structural Welding Code Steel

b). AWS D1.2 Structural Welding Code Aluminum

c). AWS D1.3 Structural Welding Code Sheet Metal

d). AWS D1.4 Structural Welding Code Reinforcing Steel

e). AWS D1.5 Bridge Welding Code

f). American National Standards Institute (ANSI) Z49.1

Protective Foot Wear

g). ANSI Z89 Safety Glasses

h). ANSI Protective Spectacles with side shields, arc goggles or other approved eye protection.

The most complete and influential safety document available today is entitled “Safety in Welding, Cutting and allied Processes (ANSI Z49.1)

Further, the following Code of Federal Regulations (CFRs) and National Standards will be briefly discussed during the course of this semester.

a). CFR 29-Labor Occupational Safety and Health Administration (OSHA)

b). CFR 40-Protection of the Environment

c). CFR 49-Transportation of Hazardous Materials

Above mentioned CFRs and or standards are integral parts and or associated with welding technology.

7. Instructional Materials.

Presentations and familiarizations are conducted by reviewing handbooks and publications published by the American Welding Society (AWS) and associated/integral regulations and standards.

8. Methods of Instruction for Learning

a). Lecture and or assignments

b). Media presentations

c). Laboratory welding demonstrations conducted by the teacher

d). Formal and informal discussion

9. Student requirements

The student must be able to understand and demonstrate the basic techniques in SMAW, GTAW and OXY-ACE, FCAW, S&BW processes, AWS Standards/codes, Health and Safety, FCFRs, and fire Protection. Assignments are to be completed on scheduled.

Late assignments will not be accepted. Also, student must be present and complete the Final Examination to receive a passing grade.

10. Course study guide

- Chapters 1. Safety in the Welding Shop
- 2. Welding and Cutting Processes
- 4. Weld Joints and Positions
- 5. SMAW Equipment and Supplies
- 6. SMAW Equipment Assembly and Adjustments
- 7. SMAW Electrodes
- 8. SMAW Flat, Horizontal, Vertical and Overhead Welding Positions
- 11. GMAW Equipment and Supplies
- 12. GMAW Equipment Assembly and Adjustment
- 15. GTAW Equipment and Supplies
- 16. GTAW Equipment Assembly and Adjustment

20. Oxyfuel Gas Cutting and Welding Equipment and Supplies
- 25. Brazing and Soldering Welding
- 33. Welding Symbols

In addition, students must take personal responsibility for their own safety and the safety of others. The teacher will explain in detail and demonstrate each welding technique and process.

Students are encouraged to ask questions and/or seek assistance during classroom or welding presentations, or at any time during the sessions.

Students must display team building attitude, interest and goodwill at all times.

11. Required special personal protective equipment

a). Safety boots

b). All-leather gauntlet-type gloves

c). Safety glasses

d). Ear plugs

e). Safety welding cap

f). Cotton (100%) long sleeve shirt and pants. Avoid wearing synthetic materials, including nylon, rayon, and polyester.

g). All other equipment, materials, and supplies will be contribute to the learning process and success in the course.

12. Disabled Student Programs and Services (DSPS)

a). Students with disabilities at Imperial Valley College are eligible for accommodations related to their disability under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act.

b). Services are provided to students with mobility, visual, hearing, speech, and orthopedic impairments, learning disabilities, psychological disabilities, acquired brain injury, and other health impairments.

c). Services are provided on an individual basis and may include reader services, note-taking, tutoring, counseling, sign language interpreting, priority registration, learning disability assessment, and adapted computer instruction.

d). For further information, please call (760) 355-6361 or visit the Disabled Student Program & Services (DSPS) office at building 2100.

e). It is recommended that students with medical certificates (e.g. light duty work) contact their family physician prior to enrollment.

13. Grading procedures

This course is designed to be an essential part of the course sequence in the programs of; Welding Technology.

The cumulative effort of the student throughout the semester will have as an outcome an earned a grade of A, B, C, D, or F.

All assigned activities will be quantifiable based on a designated point value.

There will be a total point value per assignment/activity and there will be a total point value for the semester.

a). A grade of "A" represents EXCELLENT work.

b). A grade of "B" represents GOOD work.

c). A grade of "C" represents SATISFACTORY work.

Note: The ACEPTABLE/SATISFACTORY criteria for Evaluation activities in Industry is set the 70% rate to designate success with a notation of (Pass-Fail/Accept-Reject).

a). A grade of "D" represents less than satisfactory work.

b). A grade of "F" represents un-satisfactory work.

14. Letter Grades

a). Letter A - 90% to 100% points accumulated

b). Letter B - 80% to 89% points accumulated

c). Letter C - 70% to 79% points accumulated

d). Letter D - 60% to 69% points accumulated

15. Attendance requirements

Attendance participation will generate points and will impact the learning outcomes. Attendance is important and required. Tardiness and absenteeism is not acceptable and will impact the student's ability to learn and perform. WITHDRAWAL from the class should be considered when students are unable to meet their commitment to the class. Student conduct will be in accordance with the College Code of Conduct.

a). Three absences is cause for immediate dismissal

b). Three tardiness equals to one absence

c). Professional conduct is strictly enforced. Horseplay will not be tolerated (Imperial Valley College Standards of Conduct).

16. Financial Assistance

There are several types of financial aid available to eligible students at IVC. Further information regarding financial assistance may be secured from the Financial Aid Office in the Counseling Center, Building 100.

17. Nondiscrimination & Sexual Harrassment Policy

Imperial Valley College does not discriminate in the admission nor in the offering of programs and activities because of ethnic group identification, national origin, religion, age, sex, race, color, medical

condition, Vietnam era status, ancestry, sexual orientation, marital status, or physical or mental disability, or because he or she is perceived to have one or more of those characteristics.

All forms of harassment are contrary to basic standards of conduct between individuals and are prohibited by state and federal law, as well as this policy, and will not be tolerated. The District is committed to providing an academic and work environment that respects the dignity of individuals and groups. The District shall be free of sexual harassment and all forms of sexual intimidation and exploitation.

The District seeks to foster an environment in which all employees and students feel free to report incidents of harassment without fear of retaliation or reprisal. Therefore, the District also strictly prohibits retaliation against any individual for filing a complaint of harassment or for participating in harassment investigation. Such conduct is illegal and constitutes a violation of this policy.

Limited English Speaking Students, who are otherwise eligible, will not be excluded from any vocation education program.

18. Parking permits

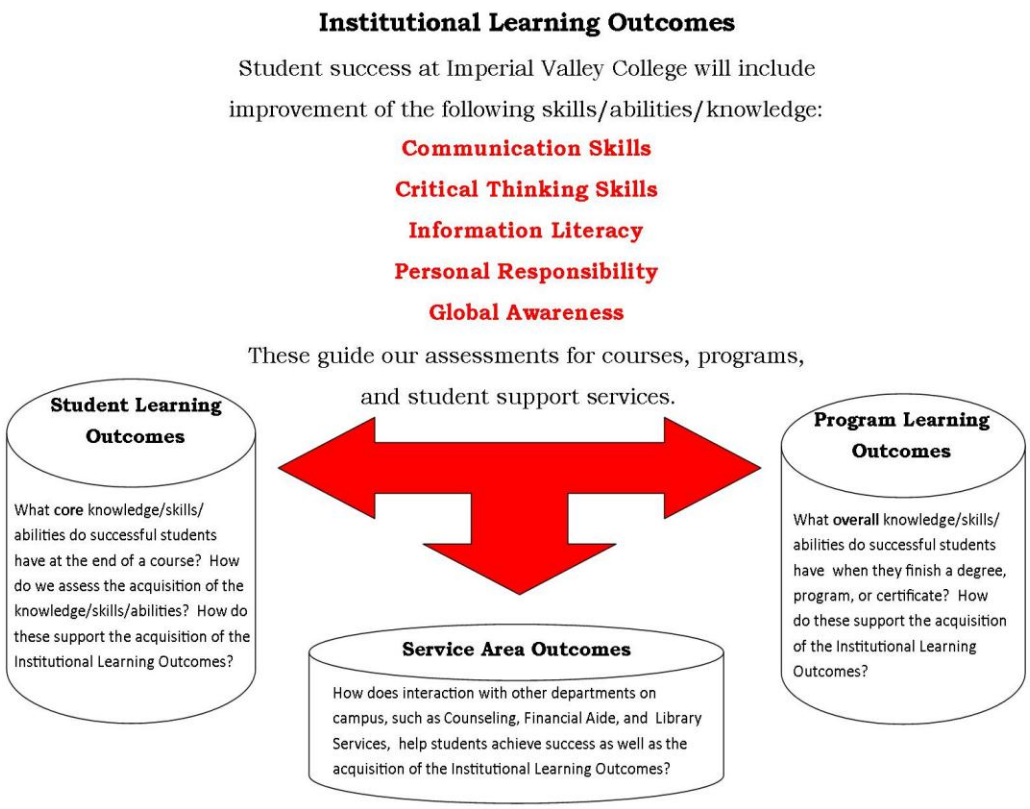
All vehicles parked on campus must have a valid parking permit. For further information, contact the Parking Control Office.

A speed of 10 mph on campus must be strictly observed.

19. Tobacco-Free District

As most of you already know, IVC became tobacco-free the first day of the 2009 fall semester (ref: resolution 14266).

After that, the use tobacco products shall be prohibited anywhere on District Property.



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