

**Basic Course Information**

Semester:	<b>Fall 2016</b>	Instructor Name:	<b>CARLOS ARAIZA</b>
Course Title & #:	<b>SHIELD AND METAL ARC WELD ON PIPE 230</b>	Email:	<b>Carlos.araiza@imperial.edu</b>
CRN #:	<b>10947</b>	Webpage (optional):	
Classroom:	<b>3120</b>	Office #:	<b>3121</b>
Class Dates:	<b>Aug 15-Dec 9</b>	Office Hours:	<b>T-W-TH.11:30am - 12:30pm</b>
Class Days:	<b>SAT</b>	Office Phone #:	<b>760-355-6319</b>
Class Times:	<b>8:00-2:30 PM</b>	Emergency Contact:	<b>760-890-4286</b>
Units:	<b>3 units</b>		

**Course Description**

Emphasis is on skills development for SHIELDED METAL ARC WELDING on carbon steel pipe open root with use of E6010 and E7018 electrodes. Proper use of filler metal and welding joint design are emphasis throughout the course. Oxy/Acetylene cutting process is used to preparing the coupons.

**Course/Catalog Description**

Emphasis is on skill development for shield Metal ARC Welding on carbon steel pipe (open root) with use of E6010 and E7018 electrodes. Proper use of filler metal and welding joint designs are emphasis throughout the course.

Oxy/Acetylene cutting process is used for preparing welding coupons.

Safety and PPE (Proper Personal Equipment) is enforced throughout the course. (SCU)

Recommended preparation: **Weld 100 and Weld 125**

**Student Learning Outcomes**

**Student Learning Outcomes (SLO"s)**

Explain a set of three existing hazards in the SMAW pipe welding environment and identify applicable standards. Describe and demonstrate preparation of pipe sample for a "Bend Test" method of DT to determine accept/reject status for SMAW pipe samples.

**Institutional Student Learning Outcomes**

1. **Communication Skills** ( Reading Writing, and Speaking)
2. **Critical Thinking** (Problem Solving)
3. **Personal Responsibility** (meeting Rules, Procedures, Employability skills, etc.)
4. **Information Literacy** (Understanding information sources such as internet, media, etc.)
5. **Global Awareness** (understanding our position within a Global context.)

## Course Objectives

**Measurable Course Objectives and Minimum standards for grade of "C" Upon satisfactory completion of the course, students will be able to:**

1. **Demonstrate knowledge of safety protocols.**
2. **Demonstrate the preparation methods on pipe ends for open root welding.**
3. **Demonstrate and apply the preparation of welding pipe together.**
4. **Demonstrate proficiency in basic pipe-fitting skills.**
5. **Demonstrate and apply welding methods to cut and bevel pipe with Oxy/Acetylene process.**

## Textbooks & Other Resources or Links

**Required: Yes**

**Modern Welding 11<sup>th</sup> edition. G-W Publisher. Technical Guide. Available in the book store.**

**ISBN 978-1-60525-795-2**

## Course Requirements and Instructional Methods

### Equipment and Supplies

- Personal protective Equipment (PPEO)
  1. Safety Glasses
  2. Helmet/ Hood
  3. Welding Gloves
  4. Leather Work Boots
  5. Ear plugs/ Protection
  6. 100% cotton long sleeve shirt & pants
  7. Leather jacket or sleeves
  8. **(NO CONTACT LENCES in the lab)**

### Welding standards

1. Safely perform pipe joint preparation by cutting, grinding, and layout per the parameter of the given WPS.
2. Safely perform pipe appropriate SMAW welding procedures for a 5G open root on 6 inch pipe using E6010 per the parameters of the given WPS.
3. Explain three welding details and procedures that are common to pipe welding with regard to AWS, ASME, and API standards.
4. Safety in Welding
5. Shield Metal Arc Welding on pipe
6. Pipe and Tube welding
7. Welding joint design, welding and costs

8. Testing and inspections of welds
9. Procedure and Welding Qualifications
10. Oxy/Fuel Gas Cutting

**Instructional Methodology:** Lecture/ Demonstration, Group Discussion.  
Outside Class Assignments, Media Presentations.

### Course Grading Based on Course Objectives

#### A. Grading Criteria

1. Attendance: First day of class, regular attendance and withdrawal after exceeding the number of class hours per week.
2. Tardiness: Three times one absence (I.V.C. Gen. Catalog pg. 24) 09-10
3. Absences: 3 absences = automatic drop. (I.V.C. Gen. Catalog pg. 24.) 09-10
4. Student Conduct (I.V.C. Gen. Catalog. Pg. 22) 2009-17
5. Grading System ( I.V.C. Gen. Catalog pg. 17 2009-17)
  - A. = 90%- 100% of points = Excellent
  - B. = 80% - 89% of points = Good
  - C. \* =70% - 79% of points = Satisfactory
  - D. = 60% - 69% of points = Pass, less than Satisfactory
  - E. = Less than 60% of points = Failing

\*Many programs require most or all courses to be completed with a "C" grade or better; not an average of "C."

The learning activities for the Imperial Valley College Welding Technology Program are based on accepted practices, procedures, specifications and standards of, but not limited to:

The American Welding Society (AWS)  
The American Society for Testing and Materials (ASTM)  
The American Petroleum Industry (API)  
The American National Standards Institute (ANSI)  
The American Society for Non-Destructive Testing (ASNT)

### Attendance

A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See [General Catalog](#) for details.

- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.

- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

### Classroom Etiquette

- **Electronic Devices:** Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- **Food and Drink** are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- **Disruptive Students:** Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the [General Catalog](#).
- **Children in the classroom:** Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

### Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

### Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- **Plagiarism** is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- **Cheating** is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the [General Catalog](#) for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or



attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

### Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- [Blackboard Support Site](#). The Blackboard Support Site provides a variety of support channels available to students 24 hours per day.
- [Learning Services](#). There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your [Campus Map](#) for the [Math Lab](#); [Reading, Writing & Language Labs](#); and the [Study Skills Center](#).
- [Library Services](#). There is more to our library than just books. You have access to tutors in the [Study Skills Center](#), study rooms for small groups, and online access to a wealth of resources.

### Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the [Disabled Student Programs and Services](#) (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

### Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- [Student Health Center](#). A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC [Student Health Center](#) at 760-355-6128 in Room 1536 for more information.
- [Mental Health Counseling Services](#). Short-term individual, couples, family, and group therapy are provided to currently enrolled students. Contact the IVC [Mental Health Counseling Services](#) at 760-355-6196 in Room 2109 for more information.

### Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC [General Catalog](#).

### Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC [Library Department](#) provides numerous [Information Literacy Tutorials](#) to assist students in this endeavor.

### Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages/Due Dates/Tests
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## Imperial Valley College Course Syllabus

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<b>Anticipated Class Schedule/Calendar</b>		
<b>Week 1</b> <b>August 19-21</b>	Syllabus & Instruction Chapter 1-15-Science of Development	<b>Pages 1-502</b>
<b>Week 2</b> <b>August 28-30</b>	Chapter 1-15 continued Chapter 16- Biology of Mind	<b>Pages 504-505</b>
<b>Week 3</b> <b>September 4-6</b>	Paper: Distinguishing myth from science during first 2 years of life.	<b>Due 9-16-2016</b>

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<b>Module 2: Safety and Health of Welders</b>		
1. Demonstrates proper use and inspection of personal protection equipment (PPE)	<b>Text:</b> Ch. 1: 14, 16-17, 20-21,25,27,30-33 Ch. 5: 147-150 Ch. 6: 160-161,186, 228-229 Ch. 7:228 Ch. 8: 249,252,264 Ch. 9: 302 Ch. 10: 311-312 Ch. 11: 349-350 Ch. 12: 392 Ch. 14: 419 Ch. 16: 478-479 Ch. 18: 526 Ch. 22: 621	<b>Lab Workbook:</b>  Lessons 1A, 1B, 1C, 1D, 5B, 6A, 8A, 9A, 17A, 23A
2. Demonstrate proper use and inspection of ventilation equipment.	<b>Text:</b> Ch. 1: 14-15, 18-19, 25-33 Ch. 10: 311-312 Ch. 12: 392-395 Ch. 14: 410-415, 429-430 Ch. 16: 478-479 Ch. 22: 621 Ch. 32: 8265-826, 829-830	<b>Lab Workbook:</b>  Lessons 1A, 1B, 1C, 1D, 6A, 8A, 9A, 17A, 23A
3. Demonstrates proper use and inspection of ventilation equipment.	<b>Text:</b> Ch. 1: 19-212, 23-24,27 Ch. 6: 161, 187 Ch. 7: 226 Ch. 22: 621 Ch. 32: 817	<b>Lab Wordbook:</b>  Job 6B-1 Lesson 9A
4. Demonstrates proper Hot Zone operation	<b>Text:</b> Ch. 1:24-26 Ch. 5: 229 Ch. 12: 393-395 Ch. 14: 419 Ch. 22: 621	<b>Lab Workbook:</b>  Lessons 1A, 1B, 1C, 1D, 6A, 8A, 11B

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<p>5. Demonstrates proper work actions for working in confined spaces.</p>	<p><b>Text:</b> Ch. 1: 20-21,24 Ch. 7: 226 Ch. 8: 264 Ch. 14: 430 Ch. 22: 621</p>	
<p>6. Demonstrates proper use of precautionary labeling and MSDS information.</p>	<p><b>Text:</b> Ch. 1: 21-22</p>	
<p>7. Demonstrates proper inspection and operation of equipment used for each welding and thermal cutting process used. 8. (This is best done as a part of each of the required welding or thermal cutting processes.)</p>	<p><b>Text:</b> Ch. 1: 27, 31-33 Ch. 5: 131,134 Ch. 6: 159-160 Ch. 8: 236-250 Ch. 274-290 Ch. 10: 310-311 Ch. 12: 364-372 Ch. 23: 624-626</p>	<p><b>Lab Workbook:</b>  Lesson 2 All Jobs in Lessons 6C, 6D, And 6E Jobs 9D-2 through 9D-7</p>
<p><b>Module 3: Drawing and Welding Symbol Interpretation</b></p>		
<p>1. Interpret basic elements of a drawing or sketch.</p>	<p><b>Text:</b> Ch. 2: 35-43</p>	<p><b>Lab Workbook:</b> Lesson 2 All Jobs in Lessons 6C, 6D, and 6E Jobs 9D-2 through 9D-7</p>
<p>2. Interpret welding symbol information</p>	<p><b>Text:</b> Ch. 3: 55-67</p>	<p><b>Lab Workbook:</b> Lesson 3B Jobs 6E-1 through 6E-4 All Jobs in Lesson 8C All Jobs in Lesson 9D Jobs 9E-2 thought 9E-6 All Jobs in Lessons 12C, 12D, and 12E Job 12F-1 Job 16A-1 Job 16B-1 Job 20-1 Job-1</p>
<p>3. Fabricate parts from a drawing or sketch.</p>	<p><b>Text:</b> Ch. 2: 35-43 Ch. 3: 45-55</p>	<p><b>Lab Workbook:</b> Lesson 2 All Jobs use drawing and AWS weld Symbols.</p>



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<b>Module 4: Shielded Metal Arc Welding (SMAW)</b>		
1. Perform safety inspections of SMAW equipment and accessories.	<b>Text:</b> Ch. 1: 31-33 Ch. 5: 131,134 Ch. 6: 159-160	<b>Lab Workbook:</b> Lesson 1C Lesson 6A Job 6B-1
2. Make minor external repairs to SMAW equipment and accessories.	<b>Text:</b> Ch. 5: 131, 134-138	Job 6B-1
3. Set up for (SMAW) operations on carbon steel.	<b>Text:</b> Ch. 6: 158-159,161-165 Ch. 20: 561	<b>Lab Workbook:</b> Jobs 6B-1 All jobs in Lessons 6C,6D, and 6E
4. Operate SMAW equipment on carbon steel.	<b>Text:</b> Ch. 6: 161-172,176-186	<b>Lab Workbook:</b> Jobs 6B-2 through 6B-5 All Jobs in Lessons 6C, 6D, and 6E
5. Make fillet welds in all positions on carbon steel.	<b>Text:</b> Ch. 6: 173-174, 177-180	<b>Lab Workbook:</b> Lesson 6C Job 6C-2 Job 6C-3 Lesson 6D Job 6D-1 Job 6D-2 Lesson 6E Job 6E-1 Job 6E-2 Job 6E-4 Job 6E-5
6. Make groove welds in all positions on carbon steel.	<b>Text:</b> Ch. 6: 173,180-185	<b>Lab Workbook:</b> Lesson 6C Job 6C-1 Job 6C-4 Lesson 6D Job 6D-3 Lesson 6E Job 6E-3 Job 6E-6
7. Passes SMAW welder performance qualification test (2G and 3G, uphill, limited thickness test plates) on carbon steel.	Ch. 31: 797-799	