#### WILLIAM RAINEY HARPER COLLEGE CAREER AND TECHNICAL PROGRAMS DIVISION

**GENERAL COURSE OUTLINE**

 Department Coordinator: Kurt J. Billsten Phone: 847-925-6149 Email: Kbillste@harpercollege.edu

|  |  |  |  |
| --- | --- | --- | --- |
| Course Prefix | Course Number | Course Title | *Contact Hours* |
| WLD | 110 | WELDING I | 1.1*Lecture/Demonstration*2 . .1*Lab/Studio*3. 3 *Credit Hours* |

**Course Description**

Covers fundamentals of oxyacetylene welding theory and practices and beginning electric welding. Includes arc welding and gas welding, brazing and cutting in the horizontal position.

#### Topical Outline

1. Basics of Welding Safety
2. Basics of Shielded Metal Arc Welding Ill. Basics of Oxyacetylene Welding
3. Establishing a Stable Arc
4. Determining Proper Amperage Setting and Electrode Selections
5. Importance of Slag Removal/Weld Cleaning
6. Oxyacetylene Welding Equipment Identification and Operation
7. Recognition of Flame Types
8. Developmenting Eye-Hand Coordination to Allow Production of Quality Welds

#### Method of Presentation

1. Lecture
2. Other: 1. Lecture with use of overhead projector 2. Films and filmstrips where applicable 3.

In-class problem solving and discussion

#### Student Outcomes {The student should)

1. recognize safety of welding operator and observers.
2. prepare set-up of welding equipment.
3. be able to produce high quality common arc welds in the flat and horizontal positions.
4. be able to produce high quality Oxyacetylene wells, brazing, cuts, and pierces.
5. be able to produce good welds.

#### Method of Evaluation

* 1. *Typical classroom assessment techniques*

\_Projects

\_Class participation

\_Objective tests

\_Studio/Lab performance

\_Final exam

\_Portfolios

\_Essays/Term papers

\_Oral examination

\_Research report

### B. Course content learning outcomes

\_Quizzes

\_Group participation

\_Case study assignments

\_Homework

\_Midterm Exam

\_Exams

1. *Additional assessment information (optional).*

Competencies and skills in the following are to be achieved. All assignments repeated until considered satisfactory by instructor.

* 1. Gas weld flat beads side by side on plate two passes on top of each other.
	2. Arc weld same as #1.
	3. Braze same as #1.
	4. Tent welds (single and multiple pass): gas, arc, braze
	5. Butt welds (single and multiple pass): gas, arc, braze
	6. Lap welds (single and multiple pass): gas, arc, braze
	7. MIG flat bead (same technique as #1)
	8. MIG tent
	9. MIG fillet
	10. Braze dissimilar metals: steel to cast iron, cast iron to cast iron, etc.

#### Textbook

1. *Required*

o Item #EW-369 SMAWB. Shielded Metal Arc Welding Basic. Hobart Institute of Welding Technology, 1998

o Item #EW-369 OAW. Oxyacatylene Welding, Cutting and Brazing. Hobart Institute of Welding Technology, 1995

o *Supplementary materials*

***None***

o *Software*

***None***

Prepared by: Kurt Billsten Fall 2012

CID: 3615

Language on the syllabi course materials developed by INAM funds:

From the grant agreement’s Part IV  Special Conditions, Item 15, Intellectual Property Rights, the following needs to be on all products developed in whole or in part with grant funds:

“This workforce solution was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timelines, usefulness, adequacy, continued availability, or ownership. This solution is copyrighted by the institution that created it. Internal use, by an organization and/or personal use by an individual for  non-commercial purposes, is permissible. All other uses require the prior authorization of the copyright holder.”