**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 | 210 | WELDING II | 1. 1*Lecture/Demonstration*   1. 4 *Lab/Studio* 2. 3 *Credit Hours* |

**Course Description**

Prerequisite: WLD 110 with a grade of C or better, or consent of instructor.

Covers advanced welding theory and practice in arc welding. Provides experience in MIG and TIG (Heliarc) techniques. Includes an introduction to strength of weld testing.

**Topical Outline**

1. Safety
2. Set-up Procedures (Unusual Position) Ill. Theory of Special Welding Techniques
   1. Resistance
3. Inertia
4. Ultrasonic
5. Plasma
6. Review MIG and TIG Theory and Application
7. Gas Welding Techniques (Problems)
   1. Various Unusual Positions

B. Various Material Thicknesses

1. Arc Welding Techniques (Problems)
   1. Various Unusual Positions

B. Various Material Thicknesses

1. TIG Welding Techniques (Problems)
   1. Horizontal Techniques
2. Material Thickness (Special Methods)
3. Various Unusual Positions
4. MIG Welding Techniques (Problems)
   1. Various Unusual Positions

B. Various Material Thicknesses

1. Brazing
   1. Various Unusual Positions

B. Various Material Thicknesses

1. Welding Special Problems
   1. Pipe

B. Bearing Journal Buildup

**Method of Presentation**

1. Lecture
2. Other:
   1. Films and filmstrips where applicable
   2. Lab demonstrations

**Student Outcomes (The student should)**

1. demonstrate knowledge of welding practices for operator and observers.

2. prepare set-up of welding equipment.

3. prepare materials and set-up materials for out-of-position welding operations.

1. demonstrate rudimentary skills in GMAW (gas metal arc welding) and GTAW (gas tungsten arc welding).
2. be able to pass SMAW (shielded metal arc welding) qualification test in flat position.

**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

* 1. *Course content learning outcomes*

### \_Quizzes

\_Group participation

\_Case study assignments

\_Homework

\_Midterm Exam

\_Exams

1. *Additional assessment information (optional).*

### The following assignments will be considered satisfactorily completed when approved by the instructor.

* 1. Horizontal TIG Welding
     1. tent
     2. butt
     3. fillet

d. lap

### Overhead and Vertical Fillet Welds

* 1. gas
  2. arc
  3. braze
  4. MIG
  5. TIG

1. Overhead and Vertical Butt Welds
   1. gas
   2. arc
   3. braze
   4. MIG
   5. TIG
2. Pipe Welding
3. Journal Buildup
   1. arc
   2. gas

**Textbook**

1. *Required*

### o Item #EW369 GTAW. Gas Tungsten Arc Welding. Hobart Institute of Welding Technology,

2012

o Item #EW-369 GMAW-B. Gas Metal Arc Welding Basic. Hobart Institute of Welding Technology, 2012

o *Supplementary materials*

***None***

o *Software*

***None***

Prepared by: Kurt Billsten Fall 2012

CID: 3620

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.”