WELD 70B Course Outline as of Fall 2005

CATALOG INFORMATION

Dept and Nbr: WELD 70B Title: ARC & ACETYL WELD
Full Title: Arc & Oxy-Acetylene Welding
Last Reviewed: 3/12/2012

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.00	17.5	Lecture Scheduled	17.50
Minimum	2.00	Lab Scheduled	3.00	17	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 35.00 Total Student Learning Hours: 105.00

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	22 - 4 Times in any Comb of Levels
Also Listed As:	
Formerly:	

Catalog Description:
Arc and oxy-acetylene welding and cutting.

Prerequisites/Corequisites:
Course Completion or Current Enrollment in WELD 170 (or WELD 70 or WELD 70A)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: All-position arc welding, certifications, heli-arc, M.I.G. & fabrication techniques. Emphasis on projects & repairs. (Grade Only)
Prerequisites/Corequisites: Course Completion or Current Enrollment in WELD 170 (or WELD 70 or WELD 70A)
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: 4 Times in any Comb of Levels

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**			Effective:	Inactive:
CSU GE:	**Transfer Area**			Effective:	Inactive:
IGETC:	**Transfer Area**			Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:	Fall 2018
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:
Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:
The student will:
1. Demonstrate the ability to carry out safe welding practices.
2. Identify the five basic types of welding joints.
3. Prepare a sample of cast iron for welding.
4. Set up and place in operation arc, oxy-acetylene, gas tungsten and gas metal arc welding equipment.
5. Demonstrate air arc principles.
6. Identify filler metals by American Welding Society specifications.
7. Demonstrate welding in flat, horizontal and vertical postions.
8. Prepare plates for certification test in accordance with A.W.S.D. 1.1 structure code.
9. Describe the metal surfacing processing.
10. Discuss the reasons for preheating in welding.
11. Assemble gas tungsten/gas metal arc welding equipment for welding.
12. Identify common sheilding gasses for welding mild steel, stainless steel and aluminum with the gas metal arc welding process.
13. Demonstrate ability to weld in all positions with shielded metal arc, gas metal arc.
14. Achieve a passing score (75%) on written examinations.
15. Achieve a passing score (75%) on manipulative skill development demonstrations.

Topics and Scope:

I. Shielded Metal Arc
   A. Arc welding safety
   B. Fillet welds, flat position
   C. Fillet welds, vertical position

D. Single V-butt joints, flat, horizontal, and vertical positions
E. Welding cast iron
F. Hardfacing
G. Manipulative practice

II. Oxy-Acetylene
A. Oxy-acetylene safety
B. Butt and lap joints, horizontal position
C. Butt and lap joints, vertical position
D. Brazing cast iron
E. Case hardening
F. Hardfacing
G. Automatic flame cutting
H. Preheating and post-heating
I. Manipulative practice

III. Gas Metal Arc (MIG)
A. Mig safety
B. Power sources
C. Shielding gases
D. Wire feeders
E. Guns and barrels
F. Consumable wire
G. Manipulative practice

IV. Gas Tungsten Arc Welding (TIG)
A. Tig safety
B. Power sources
C. Torches
D. Sheilding gases
E. Tungsten electrodes
F. Metal preparation
G. Filler rod
H. Manipulative practice

V. Air Arc Cutting
A. Arc cutting safety
B. Equipment
C. Carbon electrodes
D. Machine settings
E. Manipulative practice

VI. Flame Cutting
A. Flame cutting safety
B. Manual
C. Automatic
D. Torches and tips
E. Gas pressure settings
F. Torch manipulation
G. Manipulative practice

VII. Metal Surfacing
A. Wear problems
B. Material selection
C. Process selection
D. Metal spraying
E. Case hardening

VIII. Plasma Arc Cutting
- A. Plasma arc cutting safety
- B. Power source
- C. Torches and nozzles
- D. Cutting gases metals
- E. Ferrous and nonferrous metals
- F. Cutting techniques

Assignment:

Include weekly eading assignments, regular quizes based on reading (including handouts developed by instructor and from manufacturers), practical skills assignments and tests. Course information will be supplemented by films and videos.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None	Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Quizzes, Exams	Problem solving 0 - 10%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances, Performance exams	Skill Demonstrations 0 - 60%

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice, True/false, Matching items, Completion	Exams 0 - 10%

Other: Includes any assessment tools that do not logically fit into the above categories.

ATTENDANCE	Other Category 0 - 10%

Representative Textbooks and Materials:
WELDING SKILLS, Giachino-Weeks