



# UAS UNIVERSITY OF ALASKA S O U T H E A S T

## WELD 120 - BASIC WELDING

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Welding Lab/Message Ph. # 796-6130  
Office Hours: 8am to 4pm M-F

Course web site can be accessed through,  
UAS ONLINE: <https://uascentral.uas.alaska.edu/online>

### Syllabus:

This course is designed to give you the skills and knowledge needed to perform basic welding operations using the Oxy-Acetylene Welding (OAW) and Shielded Metal Arc Welding (SMAW) processes. Oxy-Acetylene brazing and flame cutting will also be covered. General information on metals and other commonly used welding processes will be covered as lecture topics

Within each process we will cover; Safety, Welding Terminology, Welding Equipment, Heat Settings, Angles, Joint Types, Rod Selection, Metal Selection, Assembly/Fit-Up and Various Welding Techniques.

Grading in most cases will be a letter grade, based on the following:

1. Attendance 10% - This represents your effort to make it to class and participate.
2. Lab exercises and assignments 50% - This represents, a) ability to follow verbal and written instructions. b) comprehension of exercises. c) degree of improvement.
3. Two written exams 40%. There will be a mid-term exam covering the Oxy-Acetylene process and a final exam covering the Shielded Metal Arc Welding process.

Text books are available at the UAS Bookstore, located on the Auke Lake campus.

They are, 1) Oxy-Acetylene Welding, Cutting and Brazing.

2) Basic Shielded Metal Arc Welding.

These are published by the Hobart Welding Institute. You will also be given a "self study" guide to compliment these texts. The study guides will be reviewed prior to each of the written exams.

### INSTRUCTORS POLICIES:

1. You are required to provide suitable welding gloves and safety glasses for lab work.
2. You are responsible for cleaning up after yourself at the end of class.
3. Do not eat, drink, or smoke at the welding stations.
4. Do not waste metal or welding rod. Ask if you're not sure what to do with it!
5. No personal projects.

## Objectives of WELD 120 / Basic Welding

- Identify hazards involved in welding and what precautions to take.
- Identify and describe the basic theory of the O.A.W. (Oxy Acetylene Welding) process.
- Identify and describe the basic theory of the S.M.A.W. (Shielded Metal Arc Welding) process.
- Identify and describe the use of all major components of O.A.W. equipment.
- Identify and describe the use of all the major components of S.M.A.W. equipment.
- Identify the most common filler metals used in each process.
- Identify the most common groups of metals that readily weldable, i.e. Steel, Aluminum.
- Identify the basic joint configurations and weld types.
- Demonstrate set up and shut down of a O.A.W. system.
- Demonstrate set up and shut sown of a S.M.A.W. system.
- Demonstrate an understanding of welding parameters, i.e. heat settings, welding angles, travel speed, ect...
- Demonstrate a basic understanding of common welding mistakes and corrective measures.
- Demonstrate basic joint construction techniques and procedures
- Demonstrate a understanding of basic welding terminology.
- Demonstrate the proper use of the most common electrodes used in the S.M.A.W. process.
- Demonstrate the ability to consistently produce a sound weld with either process.

## COURSE SCHEDULE WELD 120 SEC. J01 - SPRING SEMESTER 2014

**CLASS DATES:** January 14 to March 4

**CLASS TIMES:** TUESDAY and THURSDAY - 6:00 P.M. to 10:45 P.M.

Jan. 14 . . . . . Introductions, Course Outline, Text Book and Study Guide.  
LECTURE: General Safety and Welding overview.

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LAB: O.A.W. Equipment and Setup, Puddles, Welding without,  
and, with Filler Metals.

- Jan. 16 . . . . . LECTURE/LAB: Joint Design and Weld Types / Lap, Butt and Tee Joints.  
Jan. 21 . . . . . LECTURE/LAB. Oxy-Acetylene Cutting / Cutting and Welding Practice.  
Jan. 23 . . . . . LECTURE/LAB: Brazing and Braze Welding.  
Jan. 28 . . . . . LECTURE/LAB: Study Guide Review/ Welding Practice.  
Jan. 30 . . . . . OXY-ACETYLENE WRITTEN EXAM / Welding Practice,  
Feb. 4 . . . . . LECTURE: The Arc Welding Process: Safety, Arc Welding Overview & Power Sources,  
LAB: Equipment Setup, Striking the Arc and Welded Pads.  
Feb. 6 . . . . . LECTURE/LAB: Electrodes Demystified / Lap Joints using SMAW.  
Feb. 11 . . . . . LECTURE/LAB: Print Reading and Weld Symbols / Lap/Tee Coupon.  
Feb. 13 . . . . . LECTURE/LAB: Multi-Pass Fillet Welds  
Feb. 18 . . . . . LECTURE/LAB: Sheet Metal Welding.  
Feb. 20 . . . . . LECTURE/LAB. Sheet Metal Welding/Advance Techniques.  
Feb. 25 . . . . . LECTURE/LAB: Study Guide Review and Metals / Welding Practice.  
Feb. 27 . . . . . LAB: Final Welding Assignment  
March 4 . . . . . FINAL EXAM and Last Chance To Turn In Assignments.

**IMPORTANT DATES TO REMEMBER !!!!**

- Jan. 28 . . . . OXY ACETYLENE STUDY GUIDE REVIEW  
Jan. 30 . . . . OXY ACETYLENE WRITTEN TEST  
Feb. 4 . . . . BEGINNING OF THE ARC WELDING SECTION  
Feb. 25 . . . . ARC WELDING STUDY GUIDE REVIEW  
Mar. 4 . . . . FINAL EXAM AND LAST DAY OF CLASS
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