

Angelina College  
Technology and Workforce Division  
WLDG-2443 Advanced Shielded Metal Arc Welding (SMAW)  
General Syllabus

1. **BASIC COURSE INFORMATION:**

- A. **Course Description:**  
WLDG 2443 - Advanced Shielded Metal Arc Welding (SMAW). Four hours credit. Advanced topics based on accepted welding codes. Training provided with various electrodes in shielded metal arc welding processes with open V-groove joints in all positions. Six laboratory hours each week. Lab fee required.
- B. **Intended Audience:**  
Sophomore course
- C. Instructor: (See Blackboard Course Content for Instructor Information)  
Office Location:  
Office Hours:  
Phone:  
E-mail Address:

II. **INTENDED STUDENT OUTCOMES:**

A. **Core Objectives Required for this Course**

1. **Critical Thinking:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication:** to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. **Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
4. **Personal Responsibility:** to include the ability to connect choices, actions and consequences to ethical decision-making

B. **Course Learning Outcomes for all Sections**

Describe effects of preheating and postweld heating; explain precautions used when welding various metals and alloys; distinguish between qualification and certification procedures; and discuss problems of welding discontinuities; perform open groove welds with low carbon steel and low alloy electrodes in all positions.

III. **ASSESSMENT MEASURES**

A. **Assessments for the Core Objectives:**

1. **Critical Thinking:** Students will be given a job related scenario and ask to answer questions on how best to plan for and complete the job. AC Standardized Rubrics will be used for grading.
2. **Communication:** Students will be required to effectively communicate with instructors and fellow students throughout the course. Assignments will be given to aid in facilitating communications.
3. **Teamwork:** Students will be given a group project to design, develop a material list, and complete the project. AC Standardized Rubrics will be used for grading.
4. **Personal Responsibility:** Students will be required to complete assignments on welding safety to demonstrate personal responsibility.

## **B. Assessments for Course Learning Outcomes**

1. Students will determine the proper preheating and postweld heating for different materials.
2. Students will explain the differences between Qualifications and certification procedures.
3. Students will demonstrate an open groove weld low carbon steel and low alloy electrodes in all positions.

## **1. INSTRUCTIONAL PROCEDURES:**

1. Students will receive 6 hours of Lab instruction per week
2. Lecture will be provided individually based on the student's current assignment.
3. Lab test will be given based on the expected progress at the time of the test. See Attachment A.

## **V. COURSE REQUIREMENTS AND POLICIES:**

### **A. Required Textbooks and Recommended Readings, Materials and Equipment**

WELDING II, Instructional Material Service, Texas A&M University, College Station.

B. Assignments – *(Appropriate due dates, schedules, deadlines)*

Assignments from your Textbook will be completed using the Black Board Learning System. It can be accessed from any computer on or off campus with an Internet Connection. The link to Black Board is located on the right hand tool bar of the main college web site: [www.angelina.edu](http://www.angelina.edu)

READING ASSIGNMENTS:

- a. Student will read chapters in text as assigned by instructor
- b. See Attachment B for required chapter assignments.
- c. Due dates can be accessed in the assessment folder on Blackboard.

WRITING ASSIGNMENTS:

- a. Writing assignments will be assigned as needed in the course.

REQUIRED TOOLS:

- a. See Attachment C for a list of required tools.

DRESS CODE:

- a. See Attachment C for the Dress Code.

### **B. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.**

1. **Academic Assistance** – If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Sellestine Hunt Associate Dean of Student Services, Student Center, Room 200. At a post-secondary institution, you must self-identify as a person with a disability; Ms. Hunt will assist you with the necessary information to do so. To report any complaints of discrimination related to disability, you should contact Mr. Steve Hudman, Dean of Student Affairs, in Student Center, Room 101, (936) 633-5292 or by email [shudman@angelina.edu](mailto:shudman@angelina.edu).
2. **Attendance** – Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences of four (4) cumulative absences may be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. **You must officially drop a class or risk receiving an F.** This is official Angelina College Policy.

### **3. Course Specific Attendance Policy**

- a. Students begin the semester with 400 points for attendance.
- b. Students lose 100 points per absence. (Attendance can be shown as a negative grade)
  - i. Students are considered absent from class if they arrive 30 minutes after the start of class.
  - ii. Students are considered absent from class if they leave more than 30 minutes before the official end of class.
- c. Students are docked 50 pts. each time they are late or leave class early within the 30 minute window mentioned above.
- d. Students are allowed to make up lost attendance points in other class sections provided space is available and it is not their regular scheduled class time.
  - i. Makeup must be completed within two weeks of the absence or it will be permanent.

**VI. COURSE OUTLINE: Description of the Course Activities including due dates, schedules, and deadlines.**

- 1. Refer to the course on the Blackboard Learning System

**VII. EVALUATION AND GRADING:**

- a) Grading Criteria
  - 12 Assignments from the Text (Completed on Blackboard)
  - 4 Lab Test
  - Final Exam

a. Written Test	2350 points
b. Lab Test	1200 points
c. Attendance	400 points
d. Final Exam	300 points
e. Total	4250 points
- b) Determination of Grade
  - a.  $4250 - 4037 = A+$
  - b.  $4036 - 3825 = A$
  - c.  $3824 - 3400 = B$
  - d.  $3399 - 2975 = C$
  - e.  $2974 - 2762 = D$
  - f.  $2761 - 0 = F$

**VIII. SYLLABUS MODIFICATION:**

The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.

**IX. WORKFORCE TECHNOLOGY STATEMENT:**

- a. As a student enrolled in a Technology & Workforce program, you will encounter certain risks while you are in a classroom, laboratory experience, or in a clinical or practicum setting. In the event that you sustain an injury and/or require any medical testing or care, all resulting medical expenses (hospital, ambulance, or physician fees), are your financial responsibility and not the responsibility of Angelina College or the clinical/practicum site.

## Attachment A

**Objective:** During this semester length course students should be able to repeatedly produce the following welds with 80 to 90% accuracy, and in some cases near 100% accuracy. 100% accuracy is an abnormal achievement for welding and will generally not be met consecutively. In maintaining the self-paced nature of this course all students may not complete all welds on this list; however with proper instruction students should have the ability to catch up in future classes.

**Self-paced:** Students are expected to spend class time practicing on their assigned weld until the instructor signs off, and instructs them on the next weld in the sequence. Upon successful completion of one instructor approved weld students will be asked to produce two more of equal or higher quality. Once this requirement is met the instructor will sign off and the student advances to the next weld in sequence. Only with instructor approval will a student begin a new weld before completing the previous weld to 80 to 90% accuracy.

**Additional practice time:** Students are encouraged to avoid practice outside of the lab. This is due to the lack of instruction available, and the increased risk of learning improper techniques. Once a student learns an improper technique, it generally requires more time to break than it did to learn it. This behavior results in a loss of quality practice time and slows the learning process. Students are allowed to use the Lab outside of regular class times for more practice provided room is available to accommodate the student.

**Welds Required:**

Weld Configuration	Quality of Weld Achievement				Instructor Initials
Flat Butt Joint .035 Hard wire	Below 70%	70-80%	80-90%	90-100%	
Flat Butt Joint .045 Flux Core	Below 70%	70-80%	80-90%	90-100%	
Horizontal "T" Joint Single Pass .035 Hard Wire	Below 70%	70-80%	80-90%	90-100%	
Horizontal "T" Joint Single Pass .045 Flux Core	Below 70%	70-80%	80-90%	90-100%	
Horizontal Butt Joint .035 Hard Wire	Below 70%	70-80%	80-90%	90-100%	
Horizontal Butt Joint .045 Flux Core	Below 70%	70-80%	80-90%	90-100%	
Vertical Butt Joint .035 Hard Wire	Below 70%	70-80%	80-90%	90-100%	
Vertical Butt Joint .045 Flux Core	Below 70%	70-80%	80-90%	90-100%	
Vertical "T" Joint Single Pass .035 Hard Wire	Below 70%	70-80%	80-90%	90-100%	
Vertical "T" Joint Single Pass .045 Flux Core	Below 70%	70-80%	80-90%	90-100%	
Vertical "T" Joint Triple Pass Stringers .035 Hard Wire	Below 70%	70-80%	80-90%	90-100%	
Vertical "T" Joint Triple Pass Stringers .045 Flux	Below 70%	70-80%	80-90%	90-100%	

Core					
See Next Page					
Vertical "T" Joint Triple Pass Weave .035 Hard Wire	Below 70%	70-80%	80-90%	90-100%	
Vertical "T" Joint Triple Pass Weave .045 Flux Core	Below 70%	70-80%	80-90%	90-100%	
Overhead Butt Joint .035 Hard wire	Below 70%	70-80%	80-90%	90-100%	
Overhead Butt Joint .045 Flux Core	Below 70%	70-80%	80-90%	90-100%	
Overhead "T" Joint Single Pass .035 Hard Wire	Below 70%	70-80%	80-90%	90-100%	
Overhead "T" Joint Single Pass .045 Flux Core	Below 70%	70-80%	80-90%	90-100%	
Overhead "T" Joint Triple Pass .035 Hard Wire	Below 70%	70-80%	80-90%	90-100%	
Overhead "T" Joint Triple Pass .045 Hard Wire	Below 70%	70-80%	80-90%	90-100%	

# **Attachment B**

**WELDING II (Black Book)**  
**WLDG 2443 (ALL SECTIONS)**

Instructions:

**These assignments are to be done outside of class as homework. No class time will be provided to complete these assignments. If you do not have a computer at home the college has provided computers for student use in the Library, and computer Labs on campus. It is your responsibility to take advantage of these resources to complete course work.**

Read through each chapter. Log in to the Blackboard learning system to complete the corresponding assessment. The Safety Test is available for the first two weeks and must be completed with a 100% score of 510 points to participate in class. Students who do not score 100% will not be allowed to participate in the Lab until 100% is obtained. Beginning the third week each assessment is available for one week and will shut off after that week. No makeup assessments are allowed unless pre arranged with the instructor.

Assessments allow one attempt only, so save each answer before moving to the next question, and save all answers before submitting. Not following this procedure will result in a score of zero for all answers not saved. Students whom choose not to complete these assignments has an increased risk of failing the course.

- 1. Safety Test (PDF for study is located on the course main page)**
- 2. VI-A-2**
- 3. VI-A-4**
- 4. VI-B-4**
- 5. VI-B-6**
- 6. VI-B-8**
- 7. VII-A-1**
- 8. VII-A-3**
- 9. VII-A-4**
- 10.VIII-A-1**
- 11.VIII-A-2**
- 12.VIII-A-3**
- 13.VIII-A-4**

# Attachment C

## WELDING SUPPLIES

List of Supplies Required Daily For Welding Laboratory Classes  
WLDG-1421,1428,1457,2443

Gloves (all leather) (Replace each semester)  
Clear safety glasses (Replace each semester)  
Oxy-acetylene cutting goggles (No glasses or round lenses)  
Welding Hood (Jackson, Huntsman, Fiber Metal Only **No Auto Darkening, Plastic, or Pancake Hoods**)  
Pliers 12" (slip-joint or channel lock)  
12" Adjustable Wrench (Crescent Style)  
Chipping hammer  
Shoe Handle Wire brush (Replace each semester)  
6" Square (Speed or Tri square)  
25' Tape measure and/or 6' Lufkin folding Rule  
Rectangular Soap Stone Holder (AC will supply Soap Stone)  
Striker (Multi flint style preferred)  
Welding leather sleeves (**No Green arm sleeves**)  
WLDG-1421 & 1428 Welding text book – "Welding I" (college book store)  
WLDG-1457 & 2443 Welding text book – "Welding II" (college book store)  
2" 3 Ring Binder (Bring to class every day)  
Writing tools (paper or small pocket note book and pencil or pen)

## DRESS CODE FOR ALL WELDING CLASSES

During class sessions, all welding students will wear:

1. Minimum of 2 100% cotton khaki shirt starched (with flaps over the pockets)  
(Approximate replacement of shirts each year)
2. Minimum of 2 pair Blue jeans or blue work pants starched or pressed  
(Approximate replacement of jeans each year)
  1. Absolutely no Sagging Pants will be allowed in class.
    - a. If your pants do not fit get a belt.
3. All-cloth welding cap
4. Leather work boots (no low quarter boots or tennis shoes) (Replace as needed)
5. **Clear** ANSI Safety glasses (Replace each semester)
6. Nothing other than 100% cotton clothing will be allowed either under or over your clothing.