

# Course Syllabus

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**NOTE:** This syllabus is subject to change during the semester. Please check this syllabus on a regular basis for any updates.

**Department** : Welding Technology  
**Course Title** : Intro. to Gas Metal Arc Welding (GMAW)  
**Section Name** : WLDG\_1430\_104, 11013, 6135, 6245  
**Start Date** : 08/22/2011  
**End Date** : 12/08/2011  
**Modality** : FACE-TO-FACE  
**Credits** : 4 (2-6)

## ***Instructor Information***

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**Name** : James Mosman  
**OC Email** : jmosman@odessa.edu  
**OC Phone #** : (432) 335-6474

## **Course Description**

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An introduction to the principles of Gas Metal Arc Welding. Proper setup and use of GMAW equipment, and safe use of tools/ equipment. Instruction is given in welding various joint designs with the GMAW process.

## **Prerequisites/Corequisites**

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Prerequisite or Corequisites: WLDG 1421 or consent of Department Chair.

## **Scans**

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## **Course Objectives**

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The student will describe welding positions with various joint designs on plate; describe safety rules and equipment used; describe the various welding parameters in GMAW; understand safety rules, equipment used and testing performed by visual inspection. Student will weld various types of structural material and diagnose welding problems and perform visual inspections.

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### **ACADEMIC ETHICS:**

Each student is expected to do their own work on the assignments, and take tests without outside assistance. If unethical behaviour is detected, by Odessa College Policy, all parties involved may either be denied credit for the project, or at the instructor's discretion, the student(s) may be dropped from the class. A report will be made to the department chairman for further action as deemed necessary by the department chair.

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### **Required Readings/Materials**

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a) You must purchase the following **required** readings/materials:

Gas Metal Arc Welding Handbook  
William Minnick, Goodheart-Willcox, 5<sup>th</sup> edition  
ISBN: 978-1-59070-866-8

1. Welding Hood with shade 10 or darker lens or auto-dark lens
2. Welding Cap
3. Welding Gloves
4. Safety Glasses or Goggles or Face Shield
5. Cutting Goggles or Face Shield
6. Spark striker
7. Chipping hammer
8. Hand Wire Brush
9. Stainless Steel Hand Wire Brush
10. MIG Pliers / Welpers
11. Combination Square

All students must have equipment prior to 3<sup>rd</sup> class period or arrangements made with instructor.

b) You are encouraged to buy the following *optional* books/materials

1. Welding Leather sleeves
2. 25 foot tape measure
3. 2<sup>nd</sup> pair of Welding Gloves

### **Course Requirements (Lectures, Assignments and Assessments)**

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1. Take all tests
  2. Complete all homework assignments
  3. Complete all welds in assigned order
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### Summary of Assignments & Activities

\* NOTE: The due dates are subject to change. Please check this syllabus on a regular basis for any updates.

Item(Name)	Type	Description
1. Class Introduction, Safety Orientation	Lecture/Video/Exam	Students will be introduced to welding program, lab safety, class requirements.
2. Oxy-fuel welding and cutting	Lecture/Lab/	Review Oxy-fuel processes and safety.
3. Plasma Arc cutting	Lecture/Lab/	Introduction to PAC and safety.
4. Air Carbon Arc Cutting / Gas Metal Arc Welding Process / Operation and Safety	Lecture/Lab/Exam	Introduction to CAC-A process and safety, preparation of base metal for welding. Cutting Processes Exam. Introduction to GMAW. Chap. 1 & 2.
5. GMAW Equipment & Set-up	Lecture/Lab/	Introduction of GMAW equipment and proper set-up / Begin Gas Metal Arc Welding beads. Chap. 3.
6. GMAW Shielding Gases / Fillet Welds	Lecture/Lab	Introduction of GMAW Shielding Gases. Chap 4. / Begin Fillet welds in 2 F position.
7. GMAW Filler Materials / Vertical Fillet Welds	Lecture/Lab	Introduction to the Filler materials for GMAW. Chap. 5. / Welding practice in 3F position.
8. Weld Joints and Weld Types / Overhead Fillet Welds	Lecture/Lab	Introduction to various weld joints and types. Chap. 6. / Weld Fillets in 4F position.
9. Welding Procedures and Techniques / Groove Welds	Lecture/Lab	Introduction to welding procedures and techniques for GMAW. Chap.7 / Begin groove welds in 1G position.
10. GMAW Groove welds / Review	Lab	Complete Groove welds in 2G & 3G positions. Review Chap. 1 – 7.
11. GMAW Groove Welds / Exam	Lab/Exam	Lecture on Weld Quality, GMAW Exam Chap. 1 – 7.
12. GMAW Groove Welds	Lab	Complete groove welds in 4G positions.
13. Review Beads, Fillet and Groove Welds	Lab	Practice all weld beads, fillet welds and groove welds in all positions.
14. Lab Test	Practical Exam	Exam on weld beads, fillet welds and groove welds.
15. FCAW procedures / Welding Carbon Steels	Lecture/Lab	Lecture on welding carbon steels and introduction to FCAW procedures. Chap. 8. Weld FCAW beads in flat position.

16. FCAW welds	Lecture/Lab	Weld FCAW fillet welds in 2F and 3F positions.
17. Welding Stainless Steels / FCAW Groove Welds	Lecture/Lab	Introduction to welding stainless steels. Chap. 9. Begin welding groove welds with GMAW / FCAW in 1G position.
18. 1G welds	Lab	Practice 1G position & Bend test.
19. Welding Aluminum / 2G welds	Lecture/Lab	Introduction to aluminum welding. Chap. 10. Practice GMAW / FCAW 2G position.
20. 2G welds	Lab	Practice 2G position.
21. 2G welds	Lab	Practice 2G position & Bend test.
22. Inspection, Defects, and Corrective Action / 3G welds	Lecture/Lab	Introduction to weld inspection, defects, and corrective action. Chap. 11. Weld GMAW/FCAW 3G position.
23. 3G welds	Lecture/Lab	Practice 3G position. Review Chap. 8 – 11.
24. 3G welds / Exam	Lab/Exam	Practice 3G position. Exam Chap. 8 – 11.
25. 3G Welds /Stainless Steel / Aluminum Welds	Lab	Practice 3G position & Bend test. Practice beads and fillet welds with Stainless steel and aluminum.
26. 3G Welds /Stainless Steel / Aluminum Welds	Lab	Practice 3G position & Bend test. Practice beads and fillet welds with Stainless steel and aluminum.
27. 3G Welds /Stainless Steel / Aluminum Welds	Lab	Practice 3G position & Bend test. Practice beads and fillet welds with Stainless steel and aluminum.
28. 3G Welds /Stainless Steel / Aluminum Welds	Lab	Practice 3G position & Bend test. Practice beads and fillet welds with Stainless steel and aluminum.
29. 3G Welds /Stainless Steel / Aluminum Welds	Lab	Practice 3G position & Bend test. Practice beads and fillet welds with Stainless steel and aluminum.
30. Final Review & Clean-up	Lecture /Lab	Final Review. Clean-up Lab.
31. Final Exam	Exam	Take final comprehensive written exam.

## Grading Policy

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### METHOD OF EVALUATION:

Homework Avg.	10%
Section Quiz Avg.	20%
Mid term Lab Test	10%
Lab Work	30%
Professionalism	10%
Final Exam	<u>20%</u>
Total Grade	100%

90 – 100 = A	80 – 89 = B	72 – 79 = C
61 – 71 = D	Below 61 = F	

### Special Needs

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Odessa College complies with Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. If you have any special needs or issues pertaining to your access to and participation in this or any other class at Odessa College, please feel free to contact me to discuss your concerns. You may also call the Office of Disability services at 432-335-6861 to request assistance and accommodations.

### Learning Resource Center (Library)

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The Library, known as the [Learning Resources Center](#), provides research assistance via the [LRC's catalog \(print books, videos, e-books\)](#) and [databases \(journal and magazine articles\)](#). [Research guides](#) covering specific subject areas, [tutorials](#), and the "[Ask a Librarian](#) " service provide additional help.

### Student E-mail

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Please access your [Odessa College Student E-mail](#), by following the link to either set up or update your account: <http://www.odessa.edu/gmail/>. **All assignments or correspondence will be submitted using your Odessa College email.**

### Student Portal

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Please access your [Odessa College Student E-mail](#), by following the link to either set up or update your account: <http://www.odessa.edu/gmail/>. **All assignments or correspondence will be submitted using your Odessa College email.**

### Technical Support

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For Blackboard username and password help and for help accessing your online course availability and student email account contact the Student Success Center at 432-335-6878 or online at [https://www.odessa.edu/dept/ssc/helpdesk\\_form.htm](https://www.odessa.edu/dept/ssc/helpdesk_form.htm).

## **Important School Policies**

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For information regarding student support services, academic dishonesty, disciplinary actions, special accommodations, or student's and instructors' right to academic freedom can be found in the [Odessa College Student Handbook](#).