

Course Syllabus

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 Welding Metallurgy
Section Name : WLDG_1437_ 6135
Start Date : 08/27/2012
End Date : 12/11/2012
Modality : FACE-TO-FACE
Credits : 4 (2-6)

Instructor Information

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

Course Description

A study of ferrous and nonferrous metals from the ore to the finished product. Emphasis on metal alloys, heat treating, hard surfacing, welding techniques, forging, foundry processes, and mechanical properties of metal including hardness, machinability, and ductility. Instruction is given on technical terms used in the various phases of metallurgy, and the classifications of steel.

Prerequisites/Corequisites

Prerequisite or Corequisites: None.

ICO's

1, 2

Course Objectives

The student will describe technical terms used in the various phases of metallurgy, from early history to classification of steel. The student will discuss ferrous and nonferrous metals and how they are processed and used in industry; and describe mechanical and physical properties, surface treatment and heat treatment of metals. Student will weld

various types of structural material and diagnose welding problems and perform visual and mechanical inspections.

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.

Required Readings/Materials

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

No text required. Internet access required.

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 3rd class period or arrangements made with instructor.

Course Requirements (Lectures, Assignments and Assessments)

1. Take all tests
 2. Complete all homework assignments
 3. Complete all welds in assigned order
-

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. Safety Exam.
2. Introduction to Metallurgy	Lecture/Lab/	Ferrous and Nonferrous metals.
3. Basic Chemistry of Metals	Lecture/Lab/	Introduction to Chemistry.
4. Manufacturing Processes	Lecture/Lab/	Study the various processes used to produce steel.
5. Standards & Specifications	Lecture/Lab/	Look at various codes and standards as they relate to welded steel.
6. Properties of Metal	Lecture/Lab	Study of properties of metals.
7. Properties of Metal	Lecture/Lab	Study of properties of metals.
8. Cutting Methods and Processes	Lecture/Lab	OFC, PAC and CAC-A
9. Welding Methods and Processes	Lecture/Lab	SMAW and GTAW
10. Welding Methods and Processes	Lecture/Lab	GMAW, FCAW and SAW
11. Welding Methods and Processes	Lecture/Lab/ Exam	Other Welding processes. Exam on all Introductory Material.
12. The Effects of Temperature on Welded Structures	Lecture/Lab	Temperature phase chart.
13. The Effects of Temp. on Welded Structures	Lecture/Lab	Heat vs. Hardness, Tempering
14. The Effects of Temp. on Welded Structures	Lab	Heat Treatments
15. Fluxes and Gases for Shielding	Lecture/Lab	SMAW and SAW Fluxes
16. Fluxes and Gases for Shielding	Lecture/Lab	GMAW, FCAW and GTAW Gases
17. Welding Stainless Steels and other alloys.	Lecture/Lab/Exam	Stainless Steels and properties. Exam on Temperature Effects and Shielding Methods.
18. Welding Stainless Steels and other alloys.	Lab	Stainless Steels and properties.

19. Welding Stainless Steels and other alloys.	Lecture/Lab	Stainless Steels and properties.
20. Nonferrous Metals	Lecture/Lab	Description and Properties of Nonferrous metals.
21. Nonferrous Metals	Lecture/Lab	Aluminum Weldability and Metallurgy
22. Nonferrous Metals	Lecture/Lab	Aluminum Weldability and Metallurgy
23. Nonferrous Metals	Lecture/Lab	Aluminum Weldability and Metallurgy
24. Inspection of Welded Structures	Lecture/Lab/Exam	A Study of Welding Codes. Exam on Stainless Steel and Nonferrous Metals.
25. Inspection of Welded Structures	Lecture/Lab	AWS Codes
26. Inspection of Welded Structures	Lecture/Lab	ASME Codes
27. Inspection of Welded Structures	Lecture/Lab	API Codes
28. Castings and Forgings	Lecture/Lab	Other Metal Working Processes
29. Castings and Forgings	Lecture/Lab	Other Metal Working Processes
30. Final Review & Clean-up	Lecture /Lab	Final Review. Clean-up Lab.
31. Final Exam	Exam	Take final comprehensive written exam.

Grading Policy

METHOD OF EVALUATION:

Homework	20%
Section Quiz	20%
Lab Work	30%
Professionalism	10%
Final Exam	<u>20%</u>
Total Grade	100%

90 – 100 = A

80 – 89 = B

70 – 79 = C

61 – 69 = D

Below 61 = F

Special Needs

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)

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

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

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

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.

Important School Policies

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](#).

The Odessa College Student Success Coaches will help you stay focused and on track to complete your educational goals. If an instructor sees that you might need additional help or success coaching, he or she may submit a Retention Alert or a Starfish Alert. A Student Success Coach will contact you to work toward a solution.

Expectations for Engagement – Online Learning

To help make the web-based learning experience fulfilling and rewarding, the following Expectations for Engagement provide the parameters for reasonable engagement between students and instructors for the online learning environment. Students and instructors are welcome to exceed these requirements.

Reasonable Expectations of Engagement for Instructors

1. As an instructor, I understand the importance of clear, timely communication with my students. In order to maintain sufficient communication, I will
 - provided my contact information at the beginning of the syllabus;
 - respond to all messages within 24 hours if received Monday through Thursday and within 48 hours if received Friday through Sunday; and,
 - notify students of any extended times that I will be unavailable and provide them with alternative contact information (for me or for my supervisor) in case of emergencies during the time I'm unavailable.
2. As an instructor, I understand that my students will work to the best of their abilities to fulfill the course requirements. In order to help them in this area, I will
 - provide clear information about grading policies and assignment requirements in the course syllabus, and
 - communicate any changes to assignments and/or to the course calendar to students as quickly as possible.
3. As an instructor, I understand that I need to provide regular, timely feedback to students about their performance in the course. To keep students informed about their progress, I will
 - post grades for discussion postings within one week of the discussion thread closing.
 - provide grades for major assignments within 2 weeks of the due date or at least 3 days before the next major assignment is due, whichever comes first.

Reasonable Expectations of Engagement for Students

1. As a student, I understand that I am responsible for keeping up with the course. To help with this, I will
 - line up alternative computer and internet access in case my primary computer crashes or my internet services is unavailable;
 - recognize that the college provides free wi-fi and computer labs during regular campus hours to help me with accessing my course; and,

- understand that my instructor does not have to accept my technical issues as a legitimate reason for late or missing work if my equipment or service is unreliable.
2. As a student, I understand that it is my responsibility to communicate quickly with the instructor any issue or emergency that will impact my involvement with or performance in the class. This includes, but is not limited to
 - getting “kicked off” of the system during tests or quizzes;
 - having trouble submitting assignments; and
 - dealing with a traumatic personal event.
 3. As a student, I understand that it is my responsibility to understand course material and requirements and to keep up with the course calendar. While my instructor is available for help and clarification, I will
 - seek out help from my instructor and/or from tutors;
 - ask questions if I don’t understand; and,
 - access my course several times during the week to keep up with assignments and announcements.

Expectations for Engagement – Face to Face Learning

To help make the learning experience fulfilling and rewarding, the following Expectations for Engagement provide the parameters for reasonable engagement between students and instructors for the learning environment. Students and instructors are welcome to exceed these requirements.

Reasonable Expectations of Engagement for Instructors

1. As an instructor, I understand the importance of clear, timely communication with my students. In order to maintain sufficient communication, I will
 - provided my contact information at the beginning of the syllabus;
 - respond to all messages in a timely manner through telephone, email, or next classroom contact; and,
 - notify students of any extended times that I will be unavailable and provide them with alternative contact information (for me or for my supervisor) in case of emergencies during the time I’m unavailable.
2. As an instructor, I understand that my students will work to the best of their abilities to fulfill the course requirements. In order to help them in this area, I will
 - provide clear information about grading policies and assignment requirements in the course syllabus, and
 - communicate any changes to assignments and/or to the course calendar to students as quickly as possible.
3. As an instructor, I understand that I need to provide regular, timely feedback to students about their performance in the course. To keep students informed about their progress, I will
 - return classroom activities and homework within one week of the due date and
 - provide grades for major assignments within 2 weeks of the due date or at least 3 days before the next major assignment is due, whichever comes first.

Reasonable Expectations of Engagement for Students

1. As a student, I understand that I am responsible for keeping up with the course. To help with this, I will
 - attend the course regularly and line up alternative transportation in case my primary means of transportation is unavailable;
 - recognize that the college provides free wi-fi, computer labs, and library resources during regular campus hours to help me with completing my assignments; and,
 - understand that my instructor does not have to accept my technical issues as a legitimate reason for late or missing work if my personal computer equipment or internet service is unreliable.
2. As a student, I understand that it is my responsibility to communicate quickly with the instructor any issue or emergency that will impact my involvement with or performance in the class. This includes, but is not limited to,
 - missing class when a major test is planned or a major assignment is due;
 - having trouble submitting assignments;
 - dealing with a traumatic personal event; and,
 - having my work or childcare schedule changed so that my classroom attendance is affected.
3. As a student, I understand that it is my responsibility to understand course material and requirements and to keep up with the course calendar. While my instructor is available for help and clarification, I will
 - seek out help from my instructor and/or from tutors;
 - ask questions if I don't understand; and,
 - attend class regularly to keep up with assignments and announcements.

The SEI process for face-to-face and online courses is scheduled for the week of November 26th.