

**Bergen Community College**  
**Division of Math, Science and Technology**  
**Department of Industrial & Design Technology**

**Course Syllabus**  
**MFG-130 Welding Technology I**

Semester and year:  
Course Number:  
Meeting Times and Locations:

Instructor:  
Office Location:  
Phone:  
Office Hours:  
Email Address:

---

**COURSE DESCRIPTION:**

MFG-130 Welding Technology I is an introduction to metal joining techniques using welding, brazing and soldering with an emphasis on safe work practices. This course provides students with a basic understanding of electricity as applied to electric arc welders, metallurgy of welding, welding processes and safe use of oxy/fuel welding and heating. Students will study theory and techniques in a classroom environment. Demonstrations and applications will be performed in a laboratory setting. 2 lecture, 2 lab, 3 credits

Prerequisites: None  
Co-requisites: None

**STUDENT LEARNING OBJECTIVES:**

As a result of meeting the requirements in this course, students will be able to:

Student performance on these objectives will be measured by:

1. Identify various welding processes and their applications.	Graded worksheet assignments.
2. Recognize personal protection and environmental concerns and demonstrate safe work procedures.	Graded hands-on exercises.
3. Demonstrate the ability to create quality welds using electric arc and gas welding procedures in a laboratory setting.	Graded welding coupons.*
4. Identify and define the effects of welding on various materials and how this affects design considerations.	Exams and worksheets.

\*\* Welding Coupons – Test Materials to demonstrate mastery of task.

COURSE CONTENT:

<u>CHAPTER</u>	<u>TOPIC</u>
1.	History of welding.
2.	Welding safety and practices.
3.	Welding Metallurgy and HAZ
4.	Arc welding power sources and principles of operation.
5.	Shielded Metal Arc Welding
6.	Gas Tungsten Arc Welding
7.	Gas Metal Arc Welding
8.	Flux Cored Arc Welding
9.	Submerged Arc Welding
10.	Oxyfuel Gas Welding
11.	Brazing
12.	Soldering
13.	Oxygen Cutting
14.	Laser Beam and Water jet Cutting
15.	Resistance Welding
16.	Laser Beam Welding
17.	Adhesive Bonding of Metals

TEXTBOOK:

Welding Technology Fundamentals, 4<sup>th</sup> Edition  
ISBN: 13:978-1605252568

WORKBOOK: ISBN13: 978-1606252575

EVALUATION:

A. Worksheets, Exercises and Coupons. . . . .	70 %
B. Final Examination. . . . .	20 %
C. Class Participation . . . . .	10%
TOTAL . . . . .	100%

Projects are due the class meeting after they are assigned. Projects submitted after that date will be lowered one full letter grade per class meeting that they are late.

ATTENDANCE POLICY:

Attendance will be taken twice during each class period. The first attendance for the lecture portion of the class will be at the beginning of each class. The second attendance, for the laboratory portion of the class will be taken at approximately ½ hour before the end of class

If a student is absent from the lecture portion of the class, it will be recorded as an absence for the entire class period. If a student is absent from the laboratory portion of the class, it will be recorded as an absence from that portion of the class only.

A letter grade will be deducted from the class participation portion of your final grade for each absence beyond three absences from either portion of a class period.

SPECIAL NOTES:

**A final grade cannot be assigned for the course until all projects and coursework has been completed.**

Make-up examinations will be administered in accordance with the instructor's and division's policy.

FACULTY ABSENCE PROCEDURE: Please note well.

A daily listing will appear in the glass case located in the main hall A bldg. which will indicate all classes which are cancelled. Students can consult this case before going to class. If students find a class cancelled which has not been listed, they should report this to the divisional dean's office (A325) or to the evening/Saturday office (L113).

CALENDAR:

<u>Class Meeting</u>	<u>Date</u>	<u>Topic</u>	<u>Chapter</u>
1.	_____	History of Welding	1,2
2.	_____	Principles of Operation	2,3,4
3.	_____	Gas Metal Arc Welding & Demonstration	7
4.	_____	Shielded Metal Arc Welding & Demo	5
5.	_____	<b>EXAM 1</b> Gas Tungsten Arc Welding & Demo	6,9
6.	_____	Oxyfuel Gas Welding & Demo	10,13
7.	_____	Soldering & Brazing	8,11,12
8.	_____	<b>EXAM 2</b> Welding Metallurgy	Handouts
9.	_____	Ferrous Metals <b>Project</b>	
10.	_____	Non-Ferrous Metals <b>Project</b>	14,15
11.	_____	<b>EXAM 3</b> Open Lab	
12.	_____	High Tech Welding Process	14-17
13.	_____	High Tech Welding Process	14-17
14.	_____	Open Lab	
15	_____	<b>FINAL EXAM</b> Project Submission & Critique	

---

All BCC students enrolled in credit courses are entitled to a WebAdvisor account. With WebAdvisor, you may register online, check your schedule, room assignments, GPA, and find out what courses you need to take. To find out more about WebAdvisor or to sign up online, visit <<http://go.bergen.edu>>! While there, please make sure you give us your preferred email address. You'll find directions how to do this at <<http://go.bergen.edu/email>>.