

Grand Rapids Community College

Course Cover Sheet



**M-CAM Training Area:**

CNC/Machining  Multi-Skilled/Mechatronics  Production Operation  Welding/Fabrications

**Program(s):** Welding Technology

**Course:** MN 136

**Course Description:** Basic Welding | 4 credit, 8 contact hour course

**Date Created:** Previously Existed

**Faculty Developer(s)/Instructional Designers(s):** John Doneth

**Employer/Industry Partner:** American Welding Society, Lincoln Electric, Steelcase, Shape Corp, Praxair

**College Contact:** David Lovell

**Phone:** 616-234-3168

**Email:** davidlovell@grcc.edu

**Additional Information/Comments:**

The one-year Welding Technology Certificate Program at GRCC was adjusted through M-CAM to align with the AWS SENSE level 1 industry-recognized credential per feedback from GRCC's welding advisory committee members, who communicated that the AWS certificate was the industry standard. Employers contributing to this change were Steelcase, Shape Corp, Praxair, and others.

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ACADEMICS

CURRENT STUDENTS

FUTURE STUDENTS

FACULTY & STAFF

ALUMNI & COMMUNITY

Home > Academics > 2015-2016 Catalog

## Catalog Search

Search Catalog 

Advanced Search

Catalog Home

Academic Programs

Course Codes and Descriptions

Catalogs (2011-2015)

General Education Courses

Michigan Transfer Agreement (MTA)

About GRCC

Admissions and Enrollment Services

Associate Degrees & Programs

Student Records/Registrar

Student Services

Tuition/Financial Aid

Academic Policies and Procedures

Graduation

Continuing Education / Workforce Training

Job Training

GRCC Employees

GRCC Campus Map

2015-2016 Catalog Modifications

My Catalog



## MN 136 - Basic Arc Welding

Credits: 4

Contact Hours: 8

**Prerequisites:** None

**Corequisites:** None

**College Level Prerequisites:** None

**Description:** A study of the theory of arc welding and power supplies used. Emphasizes methods of performing various types of welds on all position work to the American Welding Society code. Eight hours lecture/lab.

**Department Consent:** No Consent

**General Education Distribution Category Met:** None



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**(616) 234-4722**

143 Bostwick Avenue NE  
Grand Rapids MI 49503-3295

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# MN 136 Basic Welding Syllabus Winter 2017

## General Information

### Instructor Name

### Contact Information and Availability

Preferred method of contact:

Office Location:

OFFICE HOURS:

PHONE:

EMAIL:

### Course Information

Basic Welding MN 136

Course description: To acquaint the student with the fundamentals of oxyacetylene, electric arc, and inert gas welding. Provide the student with basic skills in gas and arc welding, the standards for safe welding practices and the ability to determine sound welding design.

### Required Materials

Text Book:

Welding Principles and Applications, Eighth Edition by Larry Jeffus.

ISBN-10: 1-305-49469-5

ISBN-13: 978-1-305-49469-5

### Course-Specific Requirements

This course is a lecture and lab class. Students must supply their own personal work clothes and safety equipment, such as foot wear, safety glasses. These items must be adequate for shop work. Tennis shoes are not recommended and any student not dressed for work will not be allowed to work in the welding lab.

## Section Policies

### Attendance Policy

There is not extra time available to make up laboratory projects. Students must be here each week to ensure successful completion. Student's missing more than two classes will lose points in the laboratory and students missing three or may classes may receive a failing grade.

### Grading Procedure

<u>Description</u>	<u>Quantity</u>	<u>Percentage of total grade</u>
Tests	2	40%
Lab assignments	33	50%
Attendance		10% (refer to attendance policy)

\*\* Each project is worth 1.52%\*\*

\*\* There is a practical portion for the mid-term and the final exams\*\*

### Grading Policy

A 100-95	B 86-84	C 75-72	D 65-62
A- 94-90	B- 83-80	C- 71-69	D- 61-59
B+ 89-87	C+ 79-76	D+ 68-66	E 58

### Late Assignment Policy

Late assignments will be marked down ten percent per week.



## **College Policies**

### **GRCC Email and Course Communications**

Students are responsible for all communications sent via Blackboard and to their GRCC email account. GRCC student email can be accessed through Student Email (<http://email.grcc.edu>) and Blackboard at Blackboard (<http://bb.grcc.edu>).

Grand Rapids Community College (GRCC) provides an email service for all students to use. Upon enrollment, GRCC students are required to use this college issued account for all GRCC email correspondences (sending and receiving). This email account will be used for official notification by the college related to matters such as, but not limited to, financial aid, registration, and payments. The college will not respond to emails that are sent from current students' personal email accounts. Contact the help desk if you cannot access your email.

### **Disability Support Services**

Students with disabilities who wish to request accommodations must be registered with the Disability Support Services Office (DSS) in Room 368 of the Student Center. You may contact DSS at (616) 234-4140 for more information. Once you are registered with the DSS Office, you will receive an *Accommodations Agreement* to present to me to verify your registration. Please see me as soon as possible so we may have a private conversation to discuss accommodations.

### **Student Code of Conduct**

All GRCC students are held accountable to the Student Code of Conduct, which outlines expectations pertaining to academic honesty (including cheating and plagiarism), classroom conduct, and general conduct. The Code can be found in full at Student Code of Conduct.

Any student who is found cheating on any written work or welding project will be removed from the class and receive a failing grade.

### **GRCC is Tobacco Free**

We are a tobacco free campus. For complete details on this GRCC policy or for resources about quitting go to: [www.grcc.edu/beingtobaccofree](http://www.grcc.edu/beingtobaccofree)

### **Cell Phones and other devices in the classroom**

Use of telephones, pagers, players or other electronic devices *that disrupt* the learning process or teaching environment and safety of the class is prohibited in the classroom and lab.

### **Title IX Reporting Policy**

If you or another student are the victim of any form of sexual misconduct (including dating/domestic violence, stalking, sexual harassment), or any form of gender discrimination, GRCC can assist you. You can report a violation of our sexual misconduct policy ([www.grcc.edu/sexualmisconduct](http://www.grcc.edu/sexualmisconduct)) directly to our Title IX Coordinator at (616) 234-3169. You may also report the issue to a faculty member, who is required to notify the Coordinator, or you may make an appointment to speak confidentially to our Counseling and Career Center by calling (616) 234-3900.

### **Changes to the Syllabus**

The instructor reserves the right to change the contents of this syllabus due to unforeseen circumstances. Students will be given notice of relevant changes in class, through a Blackboard Announcement, or through GRCC e-mail.

**MN 136****Course Learning Outcomes/ILO Competencies:**

1. Performs safety inspections of SMAW equipment and accessories.
2. Makes minor external repairs to SMAW equipment and accessories.
3. Sets up for SMAW operations on carbon steel.
4. Operates SMAW equipment on carbon steel.
5. Makes fillet welds in all positions on carbon steel.
6. Makes groove welds in all positions on carbon steel.
7. Clearly and completely state and describe a problem/issue. (CT1)
8. Identify the best solution to a problem or issue. (CT7)

**Course Outline:****I. Shielded Metal Arc Welding (SMAW)**

- A. 6010, 6013, 7018, stringers and Waves all position
- B. 6010, 6013, 7018, 1 and 3 laps, all position
- C. 6010, 6013, 7018, 1 and 3 fillets all position
- D. 6010, 7018, butt Welds full penetration all position
- E. 6010, 6013, 7018, cross angle, flat position

**II. Oxygen/Acetylene Cutting and Safety (OAW)**

- A. Safety and OAW C
- B. Cutting with OAW

**III. Machinery Use and Safety**

- A. Grinder
- B. Shear
- C. Eye and Ear Protection
- D. Quench Procedure
- E. Shop Tour
- F. Metal use in the shop
- G. Electrode use in the shop

**H. Lectures and group activities**

## MN 136 BASIC ARC WELDING

## READING ASSIGNMENTS

Welding Principles and Applications 8<sup>th</sup> edition

WE WILL BE COVERING THE FOLLOWING CHAPTERS, IN THE ORDER GIVEN,  
DURING THE SEMESTER.

CHAPTER 2	SAFETY
CHAPTER 7	FLAME CUTTING
CHAPTER 3	SHIELDED METAL ARC EQUIPMENT, SETUP, AND OPERATION
CHAPTER 4	SHIELDED METAL ARC WELDING OF PLATE
CHAPTER 22	JOINT DESIGN
CHAPTER 25	WELDING FLAWS
<b>MIDTERM EXAM</b>	<u>COVERING CHAPTERS 2, 3, 4, 7, 22, 25</u>
CHAPTER 24	WELDING CODES AND STANDARDS
CHAPTER 28	FILLER METAL SELECTION
CHAPTER 26	WELDING METALLURGY
CHAPTER 27	WELDABILITY OF METALS
<b>FINAL EXAM</b>	<u>COVERING CHAPTERS 2, 24, 28, 26, 27</u>





Subject Matter Expert (SME) Course Review Summary

College: Grand Rapids Community College

M-CAM Training Area:  CNC/Machining  Multi-Skilled/Mechatronics  Production Operation  Welding/Fabrication

Degree Program Name: Welding Technology

Title of Course: MM 136 - BASIC welding

Subject Matter Expert (SME) Reviewer Information

Name: Jonathan Althausen

Title: Technical Representative

Phone: 724-705-3613

Email: Jalthausen@LincolnElectric.com

Organization/Affiliation: Lincoln Electric.

Attach Resume or provide credentials (showing years of experience and work experience that is relevant to course content):

Synopsis of Findings:

The class has a wonderful use of lab time, I would like to see some more specifics regarding which welding processes are being taught and evaluated.

Reviewers Signature

Date: 2/3/17



**Michigan Coalition for Advanced Manufacturing  
Subject Matter Expert Course Review**

1. Course Overview and Objectives	Exceptional	Satisfactory	Ineffective
The goals and purpose of the course is clearly stated.		X	
Prerequisites and/or any required competencies are clearly stated.	X		
Learning objectives are specific and well-defined.		X	
Learning objectives describe outcomes that are measurable.	X		
Outcomes align to occupational focus (industry skills and standards).	X		
Comments or recommendations: <i>Slightly unclear which processes are covered in electric arc and inert gas welding. I would suggest defining SMAW, GMAW, OFW, or OFC</i>			
2. Material and Resources	Exceptional	Satisfactory	Ineffective
The instructional materials contribute to the achievement of the course learning objectives.	X		
The materials and resources meet/reflect current industry practices and standards.	X		
The instructional materials provide options for a variety of learning styles.	X		
Resources and materials are cited appropriately. If applicable, license information is provided.	X		
Comments or recommendations:			
3. Learning Activities	Exceptional	Satisfactory	Ineffective
Provide opportunities for interaction and active learning.	X		
Help understand fundamental concepts, and build skills useful outside of the learning object.	X		
Activities are linked to current industry practices and standards.	X		
Comments or recommendations:			



**Michigan Coalition for Advanced Manufacturing  
Subject Matter Expert Course Review**

4. Assessment Tools/Criteria for Evaluation		Exceptional	Satisfactory	Ineffective
The course evaluation criteria/course grading policy is stated clearly on syllabus.		X		
Measure stated learning objectives and link to industry standards.		X		
Align with course activities and resources.		X		
Include specific criteria for evaluation of student work and participation.		X		
Comments and recommendations: <i>I agree with the use of frequent lab assignments.</i>				
5. Equipment/Technology		Exceptional	Satisfactory	Ineffective
Meets industry standards and needs.		X		
Supports the course learning objectives.		X		
Provides students with easy access to the technologies required in the course/module.		X		
Comments and recommendations:				

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## Jonathan M. Althausen

### OBJECTIVE

To obtain an opportunity in Sales Engineering that utilizes a determined individual with strong interpersonal and problem solving skills

### EDUCATION

Grove City College Grove City, PA 2007-2011

#### B.S. Electrical Engineering

- 4 year ABET Accredited Electrical Engineering School
- QPA- 3.4/4.0 Major GPA 3.4/4.0 ~ *Cum Laude, Honors*
- Dean's List: Fall: 2009, 2010 Spring: 2008, 2009, 2010, 2011

### WORK

The Lincoln Electric Company Cleveland, OH June 2011 - Present

### EXPERIENCE

#### Technical Sales Representative

- Graduated first place of technical sales training program with the Lincoln Electric Company
  - Competed against other engineers in a rigorous eight month program
  - Evaluation based on written exams, welding skills, presentations, leadership, and teamwork
- Given responsibility to handle a \$6 million dollar sales territory based out of the Pittsburgh District Office
- Given responsibility to handle a \$10 million dollar sales territory based out of the Grand Rapids Office
- Interacted with large end users such as Caterpillar, General Electric, and SMS Millcraft
- Gained technical expertise on product line and industry to educate and support distributor salesmen
- Provided lectures on advanced welding technology to vocational high schools and community colleges
- Facilitated cost savings and productivity increases for customers using innovative methods and technology
- Managed and completed sales of large capital equipment up to \$230,000
- Provided cost saving reductions for end users totaling \$720,000

### INTERNSHIPS

Bechtel Plant Machinery Inc. Monroeville, PA May 2010 - August 2010

#### Electrical Engineering Intern

- Reviewed fuse evaluations to ensure the proper fuse was installed in rod position indication equipment.
- Analyzed fuse data sheets and utilized circuit analysis to aid in the selection process.
- Composed a failure analysis of power conversion equipment. Trended data using Excel spreadsheets.
- Helped create a template for a failure database and populated the database with failed components.
- Wrote an article for the company newsletter, a newsletter that is distributed to over 800 employees.

### LEADERSHIP

**Skills USA** Michigan State Chair October 2013 - Present

- Oversee the state of Michigan welding competition for high school students
- 80 student compete for a chance to represent the state of Michigan at the national competition
- Oversee 25 volunteers, manage non-profit budget and projects

**American Welding Society-West Michigan** Board Member November 2013 - Present

- Coordinated and facilitated technical meeting gathers
- Drive the future and goals for the organization
- Volunteer and aid in non-profit fundraisers for scholarships

### TECHNICAL

**Languages:** C++, Matlab, Assembly

### SKILLS

**Software:** Microsoft Office, SAP, CRM, Visual Studio, PSPICE, Mathematica

**Welding:** Gas Metal Arc, Shielded Metal Arc, Gas Tungsten Arc, Submerged Arc, Flux Cored Arc, and Robotic