

Schoolcraft College

Course Cover Sheet



M-CAM Training Area:

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

Program(s): 1) Welding Pre-Apprenticeship Certificate
2) Welding Fabrication Certificate
3) Welding Joining Technology AAS

Course: WELD 225 - Pre-Apprenticeship Welder Certification

Course Description: Obtaining American Welding Society (AWS) Welder's Certification is desirable to gain acceptance into a welding-related skilled trade apprenticeship program. Each skilled trade apprenticeship requires a unique certification, for which the student must learn skills needed for specific welding procedures and processes. This course will focus on developing the skills needed to successfully pass an appropriate AWS Certified Welder performance test, along with passing a visual and destructive examination of their weldments. To receive credit in this class, students must successfully pass an AWS Certification test on a specified procedure required for their selected welding trade.

Date Created: June 3, 2015

Faculty Developer(s)/Instructional Designer(s): Coley McLean, Amy Jones, Anne Huber

Employer/Industry Partner: Ironworkers Union Local 25

College Contact: Amy Jones
Phone: 734-462-4595
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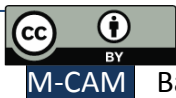
Additional Information/Comments:

As part of our TAACCCT grant and in guidance with our industry partner, the Ironworkers Union Local 25, the Welding Certification course was created. Schoolcraft became an Accredited Test Facility ATF for the American Welding Society (AWS). Students can earn AWS certifications for entrance into the welding apprenticeship program with the Ironworkers Union.

This workforce solution was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.

The eight community colleges and MCAM is an equal opportunity employer/program provider. Auxiliary aids and services are available upon request to individuals with disabilities. TTY users please call 1-877-878-8464 or visit www.michigan.gov/mdcr."

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WELD 225 Pre-Apprenticeship Welder Certification Syllabus

Instructor and Class Information

Instructor Name	Schoolcraft Instructor
Email	cmclean@schoolcraft.edu
Phone	(734) 462-4400 ext: 5176 Text @welding to number 23559
Office Location	AS362
Instructor Office Hours	
Section Number	127145
Meeting Times	Tuesday and Thursday 10am-12:30pm
Meeting Location	AS371/ AS360

Course Information

Course Description

Obtaining American Welding Society (AWS) Welder's Certification is desirable to gain acceptance into a welding-related skilled trade apprenticeship program. Each skilled trade apprenticeship requires a unique certification, for which the student must learn skills needed for specific welding procedures and processes. This course will focus on developing the skills needed to successfully pass an appropriate AWS Certified Welder performance test, along with passing a visual and destructive examination of their weldments. To receive credit in this class, students must successfully pass an AWS Certification test on a specified procedure required for their selected welding trade.

Types of Instruction

Instruction Type	Credits/Hours
Credit Hours [transcripted]	3
Lecture Hours	1
Lab Hours	3
Clinical Hours	0

Pre/Corequisites

Prerequisite WELD 113, WELD 115 and WELD 120.

Textbooks

Welding by Pearson. Contact the Schoolcraft Bookstore for the appropriate textbook availability at <http://www.schoolcraftbooks.com/>.

Learner Supplies

Safety glasses.

Pliers.

Clothing suitable for welding.

Leather welding gloves.

Welding footwear (such as boots).

Leather welding jacket.

Welding helmet.

Chipping hammer.

Hand wire brush.

Notebook for taking notes.

Core Abilities

1. Demonstrate social and cultural awareness
2. Manage information

Course Competencies

1. Demonstrate knowledge of the American Welding Society (A.W.S.) and the American Society of Mechanical Engineers (A.S.M.E.) Welder Qualification Examinations and Certifications.
2. Prepare steel plates or pipe for certification welds.
3. Utilize proper welding electrodes for certification welds.
4. Determine proper amperages and voltages used with certification electrodes.
5. Determine proper welding polarities for certification welding.
6. Classify proper weld joints and joint qualifications used in a welding certification process.
7. Demonstrate the proper inner pass cleaning procedure for multi pass certification welding.
8. Demonstrate the ability to weld in and out of position using the Shield Metal-Arc Welding process.
9. Demonstrate the ability to weld in and out of position using the Flux Core Arc Welding process.
10. Examine welds for weld defects.
11. Recognize weld discontinuities.

Academic Integrity

In accordance with the Schoolcraft College Student Code of Conduct, students are prohibited from engaging or participating in acts of dishonesty, including but not limited to cheating, plagiarism or other forms of academic dishonesty. The complete Student Code of Conduct is available in the catalog and at: <http://www.schoolcraft.edu/academics/policies/conduct>.

Any academic dishonesty associated with this course may result in the grade of zero for the assignment or exam and may lead to further disciplinary action.

Cheating

Includes but is not limited to: assistance with tests, quizzes, exams; unauthorized sources when writing papers,

preparing reports, solving problems or completing other assignments; taking/receiving academic material (including tests) belonging to a faculty or staff member without permission.

Plagiarism

Includes but is not limited to: the use of published or unpublished work of someone else without full citation. Plagiarism also includes selling/purchasing papers or other academic material. In other words, it is stealing (whether knowingly or unknowingly) another's work and passing it off as your own.

Forms of plagiarism include direct quotations, paraphrasing (restatement of text without changing the meaning and without giving attribution) and aggregation of materials (compilation and rearrangement of materials gathered from several sources).

Additional Services

The Learning Assistance Center (LAC) may have tutors for this course.

Livonia LAC: (734) 462-4436; Bradner Library, Room 119

Radcliff LAC: (734) 462-4400, ext. 6021; Radcliff Center, RC 120

There are general (open) computer labs for student use both at Livonia and Radcliff. In Livonia, MC 010 (lower level of the McDowell Center) is open daily and on weekends with hours posted in the lab. At Radcliff, RC 140 will have weekly hours posted outside the room. Call (734) 462-4400, ext. 5529 for hours at both campuses. Lab technicians are available in MC 010 to help you with hardware or system problems in the labs. They are not tutors for various software packages. Food and drink are not allowed in any computer labs. Additional policies may be posted in the computer labs.

Class Cancellation

Classes canceled will be listed on the Schoolcraft web page. Students can visit <http://www.schoolcraft.edu/cancellationsandclosings> for more information.

For College closings due to weather or other emergencies, listen to major area radio or TV stations for updates.

SAlerts RAVE Emergency Alert System

All Schoolcraft College students enrolled in credit classes will automatically be enrolled in the SAlerts RAVE Emergency Messaging System. The SAlerts system sends messages about closings and emergencies or dangerous situations involving an immediate threat to the health or safety of students.

Visit <http://www.schoolcraft.edu/scalerts> for more information.

Faculty and Off-Site Supervisor Responsibilities

1. Courses will be taught in accordance with the description published in the catalog and common syllabus.
2. A Course Syllabus will be distributed at the first session of each class.
3. Faculty will make themselves available for student consultations and will respond to emails, phone calls and student contacts in a timely manner.

4. Attendance will be taken and reported to the Records Office for State and Federal Report purposes.
5. Timely feedback will be provided to students regarding their progress.
6. Exams and other major assessments not returned to students will be kept on file for a minimum of three months after the semester end.

Important Dates

Final WPS: 07-28-16

Certification days are tentative and may change throughout the semester see Black Board for details regarding certification schedule

No Class Meetings: Memorial Day 05-30-16 and July 4th 07-04-16

Important dates for registration, semester start and end, withdrawal /refund from classes and holidays for each semester may be found by selecting the "Important Dates" link at <http://www.schoolcraft.edu/importantdates>.

Methods of Instruction

Any combination or all of the following may be used in this course.

Delivery of Course Content:

Lecture, Electronic Presentation, Demonstrations, Video/Audio Presentations, Case Studies, Field Trips, Website(s), Course Books, Articles, Other Resources

Course competencies and outcomes remain the same regardless of course length or modality.

Assessment:

Practical Application, Quizzes and Tests, Papers and Presentations, Discussion, Other Projects

Communication:

Lecture, Collaborative Discussion, Group Projects, Electronic Communication, Course Website

Missed or Late Assignments

Students are expected to plan their schedule so that they can be present for scheduled class sessions and manage their time so that assignments and assessments can be completed on or before the date they are due. Make-up of a missed exam or acceptance of a late assignment is at the discretion of the instructor.

Non-Discrimination Policy

It is the policy of Schoolcraft College that no person shall, on the basis of race, religion, color, gender, age, marital status, disability, sexual orientation, and/or national origin be excluded from participating in, be denied benefits of, or be subjected to discrimination during any program or activity or in employment.

Student Responsibilities

As a Schoolcraft College student (whether online, on campus, or at an off campus educational site), you are expected to:

1. Check your Schoolcraft email, Blackboard (if applicable) and the College website for:

- Announcements
- Class Cancellations
- Assignments
- Other pertinent information

Refer to the Schoolcraft Email User Guide, found on the Schoolcraft website for assistance in setting up your Schoolcraft email.

2. Seek technical assistance, should the need arise, regarding elements needed to complete your coursework including but not limited to SEmail, Blackboard, publisher resources, etc.

3. Use appropriate communications and proper Netiquette between you and the instructor, supervisor, and/or classmates.

4. Complete all course requirements, assignments, reflections, etc. This includes but is not limited to: being responsible for reading the textbook/course materials and not relying on the instructor presenting every detail.

5. Follow the College's policies regarding student conduct, academic integrity, and academic dishonesty.

6. Budget your time to keep up with the course work. At least two hours of study time outside of class for each hour the class meets is recommended.

7. Check the Schoolcraft College Registration Information web page for important institutional dates (e.g. registration, withdrawal, etc.).

8. Demonstrate respect and courtesy to others whether in the classroom, online, or off-site.

9. Identify yourself and the class you are referring to when contacting your instructor or supervisor via email, by phone, or in person. In addition, show the attempted work when seeking help in completing an assignment.

10. Inform your instructor or supervisor of any situations or health conditions that might create an emergency within the learning environment.

11. Discuss, in advance, any needs you may have for test taking or other accommodations. The instructor must have received notification from Disability Support Services.

12. Adhere to the instructor's classroom policies regarding the usage of any digital device (e.g. cell phone, tablet, etc.) during class.

13. Refrain from all unauthorized recording of any instructor, classmate, etc. without prior permission.

Success in Your Course and Program of Study

Schoolcraft College is dedicated to your success in achieving your goals.

The grade that you earn in this course may impact your ability to progress in future courses or in your program. Students who do not fulfill the minimum requirements set by this course and receive a grade lower

than the minimum to progress, or those who do not officially withdraw from this course by the withdrawal deadline and receive a final grade of 0.0, may have their ability to obtain financial aid impacted. This may include future denial of financial aid or the requirement to return funds that have been disbursed.

Grading Rationale

There will be a minimum of four (4) required exercises: SMAW 2F, SMAW 3G, FCAWs 2F and FCAWs 3F. Exercises will be on an ongoing schedule throughout the semester. Each exercise will be 5% of the final grade.

Final exam: 10% of final grade.

Welding Certification (2): 40% of final grade

Students must pass two of the AWS weld certification tests listed below. If the student does not pass at least two of these tests, the student will receive a zero (0) grade for the course.

Acceptable AWS weld certifications for this course are limited to the following tests:

FCAWs 1G L:1/8-3/4:WB

FCAWs 3GV L:1/8-3/4:WB

SMAW 1G L:1/8-3/4:WB

SMAW 3GV L:1/8-3/4:WB

SMAW 1G L:1/8-3/4:WOB

SMAW 3GV L:1/8-3/4:WOB

FCAWs 1G U:1/8"-U:WB

FCAWs 3GV U:1/8-U:WB

SMAW 1G U:1/8-U:WB

SMAW 3GV U:1/8-U:WB

SMAW 1G U:1/8-U:WOB

SMAW 3GV U:1/8-U:WOB

Required assignments will be documented and kept on file for assessment of core abilities and/or program outcomes.

Determination of Final Grade

EXAMPLE:

<u>Assessment Method</u>	<u>Points Earned</u>	<u>X % Weight</u>	<u>= Grade</u>
Exercises	80	5	4
Cert test	100	40	40
Cert test	100	40	40
Final WPS	80	<u>15</u>	<u>12</u>
Totals		100	96

Your grade: 96% final grade is 4.0

Grading Scale

Descriptions	Grade Scores	Grade Points		Descriptions	Grade Scores	Grade Points
	100-93	4.0			77	2.4
	92	3.9			76	2.3
	91	3.8			75	2.2
	90	3.7			74	2.1
	89	3.6		Average	73-70	2.0
Excellent	88	3.5			69	1.9
	87	3.4			68	1.8
	86	3.3			67	1.7
	85	3.2			66	1.6
	84	3.1		Below Average	65	1.5
Very Good	83	3.0			64	1.4
	82	2.9			63	1.3
	81	2.8			62	1.2
	80	2.7			61	1.1
	79	2.6		Poor	60	1.0
Good	78	2.5		Unacceptable	59 & Below	0.0

Schedule

NOTE TO STUDENTS:

The basic topics in this course must be covered but may be accomplished using a modified version of the schedule listed below.

Session	Topics	Target Competencies	Assignments/ Assessments/ Learning Activities	Due Date
1	Overview of AWS and ASME certification	Demonstrate knowledge of the American Welding Society (A.W.S.) and the American Society of Mechanical Engineers (A.S.M.E.) Welder Qualification Examinations and Certifications.		
2	Welding Procedure Specification and essential variables	Utilize proper welding electrodes for certification welds. Determine proper amperages and voltages used with certification electrodes. Determine proper welding polarities for certification welding. Classify proper weld joints and joint qualifications used in a welding certification process.	Required exercises for specialized skilled trade SMAW 2F (Exercise 1) and 3F (Exercise 2).	

3	Welding Procedure Specification and essential variables	Utilize proper welding electrodes for certification welds. Determine proper amperages and voltages used with certification electrodes. Determine proper welding polarities for certification welding. Classify proper weld joints and joint qualifications used in a welding certification process.	Required exercise for specialized skilled trade FCAW 2F (Exercise 3) and 3F (Exercise 4).	
4-5	Preparation for welding certification	Prepare steel plates or pipe for certification welds.	Joint Preparation Lab	
6	Introduction to visual inspection and destructive testing	Examine welds for weld defects. Recognize weld discontinuities.	Visual Inspection and Destructive Testing Lab	
7	Performance qualification on plate or pipe	Demonstrate the ability to weld in and out of position using the Shielded Metal Arc Welding process.	Opportunity for Performance Test	
8	Perform visual inspection and destructive testing	Examine welds for weld defects Recognize weld discontinuities.	Opportunity for Performance Test	
9-12	Performance qualification on plate or pipe	Demonstrate the ability to weld in and out of position using the Flux Core Arc Welding process.	Opportunity for Performance Test	
13-23	Develop a welding procedure specification.	Utilize proper welding electrodes for certification welds. Determine proper amperages and voltages used with certification electrodes. Determine proper welding polarities, for certification welding. Classify proper weld joints and joint qualifications used in a welding certification process.	Opportunity for Performance Test Final Exam Project Assigned	
24			Opportunity for Performance Test Final Exam Project Due	05-02-15

Updated by Curriculum Committee

May 2015



Subject Matter Expert (SME) Course Review Summary

College: Schoolcraft College

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

Degree Program Name: Welding: Pre-Apprenticeship Certificate AND Welding: Joining Technology AAS

Title of Course: WELD 225 Pre-Apprenticeship Welder Certification*

Subject Matter Expert (SME) Reviewer Information

Name: Christopher J. Olson

Title: Certified Welder/Owner

Phone: 248-240-4506

Email: 8530sgt@gmail.com

Organization/Affiliation: Exact Fabrication, LLC

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

<http://www.exactfabrication.com/>

Synopsis of Findings: *COOKS GOOD*

- IF STUDENT WISHES TO BE CERT. IN TIG, IS THAT OFFERED ?

Reviewers Signature _____

Date: _____

2/1/17



**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:			
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: <i>VARIETY OF LEARNING STYLES? LEARNING</i>			
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: <i>SKILLS FOR OUTSIDE LEARNING OBJECTIVE? -TIGI?</i>			

**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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Measure stated learning objectives and link to industry standards.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Align with course activities and resources.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include specific criteria for evaluation of student work and participation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments and recommendations:			
5. Equipment/Technology	Exceptional	Satisfactory	Ineffective
Meets industry standards and needs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supports the course learning objectives.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provides students with easy access to the technologies required in the course/module.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments and recommendations:			

This workforce solution was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.

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Christopher J. Olson

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SUMMARY

LOOKING TO FURTHER ADVANCE MY TEACHING CAREER WITHIN THE WELDING/MANUFACTURING INDUSTRY. I OFFER ENTHUSIASM, INDUSTRY EXPERIENCE, GOOD COMMUNICATION SKILLS AND DETERMINATION. I WOULD LIKE TO FIND A TEAM-ORIENTED SCHOOL THAT IS EAGER TO WORK TOGETHER, POSITIVELY, TOWARD THE FUTURE.

EDUCATION AND TRAINING

5/2010 – Lincoln Electric School of Welding

- Certificate of Advanced Sub-Arc Welding

5/2008 – Washtenaw Community College

- Associate Degree in Applied Science: Welding and Fabrication Technology
- Certificate of Welding Technology
- Advanced Certificate of Welding Technology

4/2005 – United States Marine Corp – Sergeant

- Certificates earned in the following fields:
 - Weapons Handling Instructor
 - Nuclear Biological Chemical Warfare Supervisor
 - Diesel Mechanics/Engine troubleshooting

9/1997 – Oakland Technical Center

- 1 year welding experience/education

WORK EXPERIENCE

6/2014 – Present

UBE Machinery Inc. – Machine Builder

- Manufacture Injection Molding Presses and Die Cast Extrusion Machines
- Responsible for 6G pipe welding for hydraulic pressures exceeding 2800 p.s.i.
- Proficient with hydraulic and machine operations
- Daily interpretation of welding, hydraulic, and layout blueprints

7/2013 – 6/2014

Filter Technology LLC – Shop Foreman

- Supervise daily operations of shop floor
- Perform all technical welding of pipe and structural designs
- Experience with pneumatic tubing, filtration system designs, plumbing and mechanical operations

2/2011 – 12/2014

Washtenaw Community College – Part Time Instructor - Welding and Fabrication

- Instruct Blueprint Reading for Welders and Welding/Fabrication classes
- Teach students proper safety rules in accordance with college regulations
- Teach students proper welding techniques in all processes offered
- Assess students learning by verbal questions and visual exam of welds and blueprints

7/2007 – 7/2013

Rosedale Products Inc. - Certified Welding/Technician

- Responsible for ASME code fabrication of high pressure/low pressure filtration
- Ability to interpret/execute fabrication blueprints in accordance to ASME section VIII and IX and AWS standards/specifications
- Regularly proficient in F.C.A.W. / G.T.A.W. / O.A.W. / O.F.C / S.M.A.W. / S.A.W.

8/2009 – PRESENT

Fabrication Services – Owner/Operator

- Responsible for conducting successful marketing strategies for product sales
- Manufacturer of steel/aluminum products
- Blueprint/layout development and analysis performed
- Certified Welding services performed

4/2006 – 7/2007

Turbo Spray Midwest – Fabrication Dept.

- Fabrication of Industrial Spray Robotic Systems
- Executed technical welding/fabrication in accordance to specific blueprints
- Basic usage with AUTO CAD program

11/1998 – 4/2005

United States Marine Corp – Sergeant

- Organized and executed over 100 successful convoys in Afghanistan
- Properly instructed and trained 23 combat-ready Marines for 6 years
- Organized training schedules/curriculum for proper execution
- Performed 100% of welding modification while serving with 3rd MRB
- Supervised shop maintenance procedures for mechanical overhaul of military vehicles
- Properly instructed and trained U.S. Marines with the M16A2 service rifle and M9mm pistol.

Professional Welding Licenses

- American Welding Society** – 6G Stainless pipe / 3G Aluminum G.T.A.W.
- ASME (via Rosedale Products)** – 6G Carbon/Stainless pipe G.T.A.W.
 - 6G Carbon/Stainless pipe F.C.A.W.
 - 1G Sub-Arc Welding