

WELDING TECHNOLOGY

Credentials

Welding Sculpture skills certificate	19 cr.
Fabrication certificate.....	33 cr.
Joining Technology AAS degree	60–62 cr.

Major Description

Our welding program will provide you with both hands-on welding skills and vital knowledge of metallurgy and other materials. Today’s quality-focused manufacturing world demands highly-skilled fabricators and welders. Schoolcraft offers a welding fabrication certificate that will prepare you for jobs involving metal inert gas (MIT) and tungsten inert gas (TIG) welding as well as plasma, arc and oxy-gas cutting technologies. The welding sculpture skills certificate program helps the professional sculptor or the aspiring welder gain the knowledge and skills needed in today’s art world and welding industry.

- The welding joining technology associate in applied science degree program will prepare you for a job in industrial, prototype and machine tool building, heavy equipment, construction and emerging green and sustainable technologies.
- Courses in manufacturing and metallurgy provide a better understanding of the process and allow students to become a highly skilled welder.
- Our state-of-the-art welding lab features 12 booths for M.I.G., T.I.G. and Stick, plus five for oxy-acetylene welding.
- Class sizes are limited so instructors are able to work individually with you as you perform hands-on and analytical tasks required by modern industrial technology.

Job Titles & Median Salaries or Hourly Rates

- Cutter, Solderer, Brazer: \$36,800 (national)
- Welder: \$43,420 (Michigan)

Welding: Fabrication Certificate

The welding fabrication program prepares students for employment under classifications such as welders and/or industrial fabrications. The program includes joining materials, using weldments, special techniques, equipment and other recognized fastening methods. Students acquire skills in the broad categories of welding and fabrication with added emphasis upon support technical subjects.

Students are required to purchase protective clothing, protective (safety) shoes and eye protection equipment.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

WELD 113	Shielded Metallic Arc Welding (S.M.A.W.)	3
WELD 115	Gas Metallic Arc Welding (G.M.A.W./M.I.G.)...	3
WELD 119	Gas Tungsten Inert Arc Welding (G.T.A.W./T.I.G.).....	3

Total Credits 9

First Year—Winter Semester

WELD 111	Project Mathematics	4
WELD 120	Advanced Processes—Stick Electrode and M.I.G. Welding	3
WELD 130	Advanced Processes—Gas Tungsten	3
MET 102	Introduction to Materials Science	3

Total Credits 13

First Year—Spring Session

WELD 205	Welder’s Print Reading.....	2
WELD 210-214*	Exam Preparation— <i>Select from the list below</i>	3

Total Credits 5

First Year—Summer Session

WELD 206	Welding Inspection and Qualification	2
WELD 223	Fabrication	4

Total Credits 6

PROGRAM TOTAL 33 CREDITS

Elective (Optional)

WELD 111	Project Mathematics	4
WELD 112	Contemporary Metal Sculpture 1	3

***Exam Preparation: (Select one)**

WELD 210	Preparation for Welder Certification in Shielded Metallic Arc Welding (S.M.A.W.)	3
WELD 211	Preparation for Welder Certification in Gas Metallic Arc Welding (G.M.A.W./M.I.G.)	3
WELD 212	Preparation for Welder Certification in G.T.A.W./T.I.G.	3
WELD 214	Preparation for Welder Certification in Pipe Welding.....	3

Exams for above certificate will also be provided on an individual basis.

Welding: Joining Technology AAS Degree

There is an ever increasing need for persons today that possess skills, both in welding and metallurgy. Materials of industry and new technology require highly skilled persons that understand material sciences, metallurgy, and the joining processes used to produce optimum quality fabrications. The quality conscience industry of today demands certified people that can perform tasks from the simplest, to more complex technical applications. The courses selected in this program will give the student the required skills needed to perform, both hands on and analytical tasks required by modern industrial technology.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Students seeking transfer to a baccalaureate program should request transfer guides provided by the department.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

ENG 100	Communication Skills.....	3
MET 102	Introduction to Materials Science.....	3
WELD 113	Shielded Metallic Arc Welding (S.M.A.W.)	3
WELD 115	Gas Metallic Arc Welding (G.M.A.W./M.I.G.)...3	
HUM 106	Introduction to Art and Music	1

Total Credits 13

First Year—Winter Semester

ENG 106	Business English.....	3
Mathematics	Select 1	3–4
MATH 101	Business Mathematics	
MATH 111	Applications—Utility of Math	
WELD 119	Gas Tungsten Inert Arc Welding (G.T.A.W./T.I.G.)	3
WELD 120	Advanced Processes—Stick Electrode and M.I.G. Welding	3

Total Credits 12–13

First Year—Spring Session

WELD 205	Welder's Print Reading	2
Social Science	Select 1	3
PSYCH 153	Human Relations (recommended)	
POLS 105	Survey of American Government	
SOC 201	Principles of Sociology	

Total Credits 5

First Year—Summer Session

WELD 206	Welding Inspection and Qualification	2
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Total Credits 2

Second Year—Fall Semester

MFG 102	Basic Machining Processes	3
MET 114	Engineering Materials.....	3
MET 152	Structure and Properties Laboratory.....	3
WELD 130	Advanced Processes—Gas Tungsten	3

Total Credits 12

Second Year—Winter Semester

WELD 118	Adhesive Joining Technology	4
WELD 262	Welding Metallurgy.....	3
Science*	Select any General Education Science course....3–5	
MET 211	Physical Metallurgy Structures.....	3

Total Credits 13–15

Second Year—Spring Session

WELD 210-214**	Exam Preparation— Select from the list below.....	3
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Total Credits 3

Second Year—Summer Session

WELD 223	Fabrication	4
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Total Credits 4

PROGRAM TOTAL 64–67 CREDITS

Elective (Optional)

WELD 111	Project Mathematics	4
WELD 112	Contemporary Metal Sculpture 1.....	3

* Number of credits may vary depending on the General Education Science course selection.

** Exam Preparation: (Select One)

WELD 210	Preparation for Welder Certification in Shielded Metallic Arc Welding (S.M.A.W.)	3
WELD 211	Preparation for Welder Certification in Gas Metallic Arc Welding (G.M.A.W./M.I.G.).....	3
WELD 212	Preparation for Welder Certification in G.T.A.W./T.I.G	3
WELD 214	Preparation for Welder Certification in Pipe Welding.....	3

Exams will also be provided on an individual basis.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

Welding Sculpture Skills Certificate

The focus of both the welding industry and sculpture is fabrication. Because sculpture requires artists to use materials, tools, and skills, it is natural for artists and the welding industry to merge. This welding sculpture skills certificate helps the professional sculptor or the aspiring welder gain the knowledge and skills needed in today's art world and welding industry.

Students learn basic and advanced skills in welding with the MIG and TIG welding processes as well as many fabrication techniques used in today's industry. They learn how to think and work creatively with these processes and how to conceptually and objectively discuss their work. New fabrication processes are explored to give the student an understanding of how alternative methods of fabrication satisfy different needs. This certificate creates an artistic option for entry into the welding fabrication certificate and the welding joining technology associate degree.

Students are required to purchase protective clothing, protective (safety) shoes and eye protection equipment.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

WELD 112	Contemporary Metal Sculpture 1.....	3
WELD 115	Gas Metallic Arc Welding (G.M.A.W./M.I.G.)...3	
WELD 119	Gas Tungsten Inert Arc Welding (G.T.A.W./T.I.G.).....	3

Total Credits 9

First Year—Winter Semester

WELD 120	Advanced Processes—Stick Electrode and M.I.G. Welding	3
WELD 130	Advanced Processes—Gas Tungsten	3

Total Credits 6

First Year—Spring Session

WELD 208	Advanced Metal Sculpture.....	4
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Total Credits 4

PROGRAM TOTAL 19 CREDITS