WELDING TECHNOLOGY

Applied Science and Engineering Technology Division

The associate of applied science degree with specialization in welding technology parallels the high technological demands in the joining and fabrication areas of manufacturing industries. The welding laboratory contains state-of-the-art equipment for Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW), as well as multiple thermal cutting process applications. The subject matter and laboratory experiences in the welding technology program provide training for the serious welding technologist, with emphasis on welding skill development, welding metallurgy, weldment evaluation and testing, and related technical courses. A pathway to certification in nondestructive testing (NDT) is also available for students interested in weld inspection. Students can take individual NDT courses or pursue the entire certificate for additional credentials. The MCCC welding technology program articulates with Ferris State University's four-year degree program.

Certificate programs are also available for students interested in rapid skills development with an accelerated pathway into the welding industry. MCCC offers both beginning and advanced welding certificates as well as offers AWS SENSE QC-10 and QC-11 welding process certifications. MCCC also has been a certified MDOT testing facility for the past five years.

Career Opportunities

Students are prepared for many welding-related careers and trades, including welding inspection, sales, service, design, maintenance and engineering. The college offers state and American Welding Society welder certification testing. Graduates of this program will be prepared for entry-level employment in the following areas:

- Engineering technician
- Pipefitter
- Production welder
- Weld inspector
- Welder/fabricator
- Welding metallurgy technician
- Welding sales/service technician

Note: The following codes identify courses that satisfy MCCC's General Education Requirements:
(C1) GE Natural Sciences Competency
(C2) GE Mathematics Competency
(C3) GE Writing Competency
(C4) GE Computer Literacy Competency
(C5) GE Human Experience Competency
(C6) GE Social Systems Competency

		Credits
Required General Education Courses		**21**
C1	PHY 101 (Technical Physics) or PHY 151 (General Physics I) or CHEM 150 (Fundamental Principles of Chemistry) or CHEM 151 (General College Chemistry I)	4
C2	MATH 124* (Technical Mathematics II) or competency	4
C3	ENGL 151 (English Composition I)	3
C4	MDTC 160 (Mechanical Drafting CAD I)	4
C5	Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on page 35 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**43**
1st Semester	
MATL 101 (Industrial Materials)	3
WELD 100 (Introduction to Welding Processes)	4
MATH 119* (Elementary Technical Mathematics)	2
2nd Semester	
WELD 110 (Welding Symbols and Blueprint Reading)	2
WELD 114 (GMAW and GTAW Applications)	6
MATH 124* (Technical Mathematics II)	4
3rd Semester	
METC 220 (Statics & Strength of Materials)	4
WELD 102 (Advanced SMAW)	6
WELD 103 (Weldment Evaluation and Testing)	3
4th Semester	
WELD 105 (Welding Metallurgy)	3
WELD 106 (Basic Pipe Welding)	6
WELD 109 (Basic Welding Fabrication) or WELD 216 (Basic Pipefitting)	4
Total Degree Requirements	**64 credits**
Total Degree Cost	**83 minimum billable contact hours**

** MATH 119 (Elementary Technical Mathematics) and MATH 124 (Technical Mathematics II) are required for students whose goal is to complete the associate of applied science degree and seek employment. MATH 157 (College Algebra) and MATH 159 (Trigonometry and Analytical Geometry) are recommended for students interested in transferring to a four-year institution. Other MATH courses may be selected for transfer depending on the student's choice of transfer institution. Students interested in transfer are encouraged to seek the assistance of a faculty advisor or admissions counselor.*

Welding Technology Certificate Programs

The college offers two levels of certificate programs in welding. The basic certificate is oriented toward developing those skills required for entry level jobs in the welding field. The advanced certificate program is also a skills intensive program but takes students through higher-level skill proficiencies, utilizing additional welding procedures and applications. All courses taken in the certificate program are applicable toward the associate of applied science degree.

Certificate Program: Basic Welding*

	Credits
WELD 100 (Introduction to Welding Processes)	4
WELD 102 (Advanced SMAW) or WELD 114 (GMAW and GTAW Applications)	6
WELD 103 (Weldment Evaluation and Testing)	3
WELD 110 (Welding Symbols and Blueprint Reading)	2
Total Certificate Requirements	**15 credits**
Total Certificate Cost	**20 minimum billable contact hours**

**This certificate is not federal financial aid eligible.*

Certificate Program: Advanced Welding

	Credits
MATL 101 (Industrial Materials)	3
WELD 100 (Introduction to Welding Processes)	4
WELD 102 (Advanced SMAW) or WELD 114 (GMAW and GTAW Applications)	6
WELD 103 (Weldment Evaluation and Testing)	3
WELD 105 (Welding Metallurgy)	3
WELD 216 (Basic Pipefitting)	4
WELD 110 (Welding Symbols and Blueprint Reading)	2

Total Certificate Requirements	**25 credits**
Total Certificate Cost	**34 minimum billable contact hours**

American Welding Society Certification

The college also offers course work to prepare students to qualify for American Welding Society certification at entry and advanced levels of proficiency. In addition to verification of skill levels to national standards, AWS certification also includes nationwide registry in the AWS bank. Equivalencies to associate of applied science degree requirements in welding are available upon completion of the certifications. See the division dean or welding instructor for further details.

American Welding Society (AWS) Entry Level Welding Certification (conforms to AWS-QC-10 standard)

WELD 115 (Entry Level Welding)	12

Total Certificate Requirements	**12 credits**
Total Certificate Cost	**16.67 minimum billable contact hours**

American Welding Society (AWS) Advanced Level Welding Certification (conforms to AWS-QC-11 standard)

WELD 215 (Advanced Level Welding)	12

Total Certificate Requirements	**12 credits**
Total Certificate Cost	**16.67 minimum billable contact hours**