WELD-120: WELDING TECHNOLOGY 1

Effective Term
Fall 2026

CC Approval
11/07/2025

AS Approval
11/13/2025

BOT Approval
11/20/2025

COCI Approval
03/05/2026

SECTION A - Course Data Elements

CB04 Credit Status
Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Welding (Any Degree and Professional Experience)	

Subject Code
WELD - Welding Technology
Course Number
120

Department
Welding Technology

Division
Career Education and Workforce Development (CEWD)

Full Course Title
Welding Technology 1

Short Title
Welding Technology 1

CB03 TOP Code
0956.50 - *Welding Technology

CIP Code
48.0508

CB08 Basic Skills Status
NBS - Not Basic Skills

CB09 SAM Code
C - Clearly Occupational

Rationale
The SLOs were revised to streamline outcomes, eliminate redundancy, and ensure alignment with current industry standards and measurable skills for student success.

SECTION B - Course Description

Catalog Course Description

This class provides a basis for all intermediate and advanced level courses.It is the first course of an extensive two-year program preparing the student for a skilled job in the field of welding. Beginning with trade safety, it provides training in manipulative skills in all phases of oxygen-fuel gas cutting, stick electrodes in various joints and positions, introduces GMAW, PAC, CAC-A, and related theory. Students will need to purchase some safety equipment.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit

No

Repeatability

Not Repeatable

Grading Options

Letter Grade or Pass/No Pass

Allow Audit

Yes

Requisites

SECTION D - Course Standards

Is this course variable unit?

No

Units

7.00

Lecture Hours

54.00

Lab Hours

216.00

Outside of Class Hours

108

Total Contact Hours

270

Total Student Hours

378

Distance Education Approval

Is this course offered through Distance Education?

Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Hybrid	Permanent

SECTION E - Course Content

Student Learning Outcomes

	Upon satisfactory completion of the course, students will be able to:
1.	Perform SMAW welds (1G–4G) using E6010 and E7018 electrodes.
2.	Apply safety standards and PPE in a multi-student lab environment.

3.	Set up and adjust equipment for various cutting processes.
4.	Evaluate weld quality and apply corrective techniques to meet industry standards.

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1.	Demonstrate and understand the effective and safe handling of oxy-fuel cutting equipment.
2.	Demonstrate mastery of basic manipulation techniques using E6010 electrodes.
3.	Select and identify mild steel electrodes by using the AWS numeral system.
4.	Exhibit proper weld techniques working in the flat and horizontal positions.
5.	Identify welding processes, their use and function.
6.	Perform out of position welding using E6010 electrodes.
7.	Perform welds using E7018 electrodes in flat and horizontal positions.
8.	Assemble and prepare various types of weld joints.

Course Content

BLOCK 1 – Orientation
Unit A: Classroom, shop area and its machines and tools
Unit B: Safety program and practices
Unit C: Shop Organization
Unit D: Testing and grading
Unit E: Personal conduct; attitudes and responsibilities
Unit F: General shop rules

BLOCK 2 – Occupational Appreciation 3 hours
Unit A: History and development of welding
Unit B: Economics of welding
Unit C: Moral and civic responsibilities
Unit D: Trade ethics
Unit E: Employer-employee relations and obligations
Unit F: Welding and the future

BLOCK 3 – Safety 18 hours
Unit A: Personal safety and habits
Unit B: Oxyacetylene safety
Unit C: Shop safety and rules
Unit D: Arc welding safety
Unit E: Safety devices; fire extinguishers, fire blankets, etc.
Unit F: General safety; grinders, hand tools, electrical, etc.
Unit G: Safety tests

BLOCK 4 – Cutting Processes 43 hours
Unit A: Safety
Unit B: Manual oxyacetylene and other gases
Unit C: Machine oxyacetylene and other gases
Unit D: Electric arc cutting, air arc and electrode cutting
Unit E: Cutting nozzles and gas pressures

BLOCK 5 – Electric Arc Welding with Stick Electrodes
Unit A: Safety
Unit B: Machines and equipment
Unit C: Polarity, straight and reverse
Unit D: Nomenclature of electrodes and coatings
Unit E: Preparation of metals for welding
Unit F: Starting and setting machines (voltage and amperage)
Unit G: Striking and maintaining the arc
Unit H: Running the basic beads
Unit I: Flat, horizontal, vertical and overhead welding with various electrodes
Unit J: Terminology, processes, procedures and techniques

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Lecture	Process-specific instruction on SMAW with focus on electrode selection and arc control.
Lab	Individual and paired practice using E6010 and E7018 in multiple positions.

Online Adaptation

Types	Examples of learning activities
Lecture	Self-paced content on PPE and lab safety procedures.
Discussion	Structured prompts to reinforce key theory concepts.

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
E-mail Communication
Telephone Conversations
Video or Teleconferencing

Student-Initiated Online Contact Types

Discussions

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

Types	Examples of classroom assessments
Exams/Tests	Students will be given written weekly tests covering assigned reading and weekly lectures. Example: tests comprised of multiple choice and T/F questions. Students will be given a midterm and final examination. Example: tests comprised of multiple choice, identification, short answer and T/F questions.
Lab Activities	Students will complete weekly lab assignments. Example: Place a fillet weld on a T-plate with a 1/8th" E6010 electrode in the 1G position.

Assignments

Reading Assignments

1. Students will be required to read selections from their textbook in order to understand essential concepts.

Example: Section on Shielded Metal Arc Welding, Althouse et.al., textbook.

2. Students will be required to read selections from their textbook and lecture notes in order to perform lab exercises.

Example: Place a fillet weld on a T plate with a 1/8th" E6010 electrode in the 1G position.

Writing Assignments

1. Students will be required to write-up lab assignments.

Example: List three corrective measures that may be taken to prevent or reduce arc blow.

2. Students will be required to formulate corrective actions while welding.

Example: Correctly adjusting machine settings to achieve the proper bead profile.

3. Students will interpret welds to formulate corrective action.

Example: Determine possible changes in setting parameters and/or technique to avoid undercut and cold lap.

SECTION F - Textbooks and Instructional Materials

Material Type
Textbook

Author
B.J. Moniz

Title
Welding Skills

Edition/Version
5th

Publisher
American Technical Publishers, Inc

Year
2015

Rationale
no updated version

ISBN #
978-0826930842

Material Type
Other required materials/supplies

Description
Safety glasses and gauntlet style welding gloves.

SECTION G - Diversity, Equity and Inclusivity

How does your course and/or course outline of record reflect strategies for accommodating and engaging diverse student populations, advancing equitable outcomes, and fostering inclusion for all students?
To promote equity, this course includes varied modes of instruction, clear expectations, and structured peer feedback. Students with limited welding background receive additional guided practice, and lab partners are rotated to encourage a supportive, team-based learning culture.

Course Codes (Admin Only)

CB00 State ID
CCC000592707

CB10 Cooperative Work Experience Status
N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status
Y - Credit Course

CB13 Special Class Status
N - The Course is Not an Approved Special Class

CB23 Funding Agency Category
Y - Not Applicable (Funding Not Used)

CB24 Program Course Status
Program Applicable

Allow Pass/No Pass
Yes

Only Pass/No Pass
No