WELD-100: WELDING THEORY & PRACTICE 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
100

Department
Welding Technology

Division
Career Education and Workforce Development (CEWD)

Full Course Title
Welding Theory & Practice 1

Short Title
Welding Theory & Practice 1

CB03 TOP Code
0956.50 - *Welding Technology

CIP Code
15.0614

CB08 Basic Skills Status
NBS - Not Basic Skills

CB09 SAM Code
D - Possibly 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 is a basic welding course which provides an awareness of welding and cutting processes and develops or upgrades limited manipulative skills involving oxy-fuel and plasma cutting and stick and wire feed welding. It is designed to introduce welding to community members and students in other vocational areas and to upgrade welders already in industry. This course satisfies the degree requirement for Machine Tool and DDGT.

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

3.00

Lecture Hours

36.00

Lab Hours

54.00

Outside of Class Hours

72

Total Contact Hours

90

Total Student Hours

162

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.	Identify hazards and apply safety procedures for SMAW, GMAW, OFC, and PAC equipment.
2.	Set up and operate SMAW and GMAW equipment to produce welds in 1G and 2G positions.
3.	Inspect welds for visual defects and recommend corrective actions.

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1.	Demonstrate and practice good safety and personal work habits.
2.	Use the tools, machines and equipment of welding in a professional manner.
3.	Demonstrate knowledge of the nomenclature of electrodes, gases and other supplies of welding.
4.	Demonstrate knowledge of procedures, processes and techniques of welding.
5.	Demonstrate basic skills in arc welding and oxygen-fuel gas cutting.

Course Content

1. Orientation
   a. The classroom, shop area and its machines and tools
   b. General shop rules
   c. Personal conduct - attitudes and responsibilities
   d. Testing and grading
2. Occupational Appreciation
   a. History and development of welding
   b. Economics of welding
   c. Moral and civic responsibilities
   d. Welding and the future
3. Safety
   a. Personal safety and habits
   b. Shop safety rules
   c. Oxyacetylene safety
   d. Arc welding safety
   e. Safety devices - fire extinguishers, fire blankets, etc.
   f. General safety - grinders, hand tools, electrical, etc.
   g. Safety test
4. Oxygen Fuel Gas Cutting
   a. Safety
   b. Manual oxygen-fuel gas
   c. Cutting torches (types)
   d. Oxygen-fuel gas flames, temperatures of each, etc.
   e. Machine oxygen-fuel gas cutting
   f. Cutting nozzles, tips, and gas pressures
5. Electrical Arc Welding with Stick and Hardwire Electrodes
   a. Safety
   b. Machines and equipment
   c. Polarity - straight and reverse
   d. Nomenclature of electrodes and coatings
   e. Preparations of metals for welding
   f. Starting and setting machines - voltage and amperage
   g. Striking and maintaining the arc
   h. Running the basic welds
   i. Flat and horizontal welding with various electrodes
   j. Terminology, processes, procedures and techniques

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Lecture	Safety protocols, welding equipment setup, and process applications.
Individualized Instruction	Supervised practice of welding techniques across multiple positions and processes.

Online Adaptation

Types	Examples of learning activities
Lecture	Asynchronous videos, readings, and interactive content covering welding safety, metallurgy, and symbol interpretation.
Discussion	Online forums and individual feedback to maintain engagement and support learning.

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
Skills Demonstration	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 complete weekly lab assignments. Example: place a filet weld on T plate with an E6010 electrode in the flat position.
Exams/Tests	Students will be given a mid-term and final examination. Example: tests comprised of Cumulative test of welding ability, blueprint interpretation, and process selection.

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, Modern Welding, textbook.

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

Example: produce a fillet weld on a T joint with an E6010 electrode in the flat position.

Writing Assignments

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

Example: List three corrective measures that may be taken to reduce heat distortion.

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
Bridgium

Title
How To Weld

Edition/Version
1st

Publisher
Motorbooks

Year
2008

Rationale
no updated version

ISBN #
978-0760331743

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?
This course uses inclusive teaching practices such as differentiated instruction, scaffolding of technical skills, and culturally relevant examples. Students work collaboratively in lab settings where all voices are valued, and accommodations are made to support varying physical and learning needs. Content is presented visually and verbally, ensuring accessibility for diverse learners.

Course Codes (Admin Only)

CB00 State ID
CCC000338255

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