WELD124 : Occupational Welding IV

General Information

Author:	• Curtis G Potter
Course Code (CB01) :	WELD124
Course Title (CB02) :	Occupational Welding IV
Department:	WELD
Proposal Start:	Spring 2025
TOP Code (CB03) :	(0956.50) Welding Technology
CIP Code:	(48.0508) Welding Technology/Welder.
SAM Code (CB09) :	Advanced Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000548745
Curriculum Committee Approval Date:	05/22/2024
Board of Trustees Approval Date:	07/16/2024
Last Cyclical Review Date:	05/22/2024
Course Description and Course Note:	WELD 124 is fourth in a series of occupational welding courses designed to prepare the student for employment in the welding industry. It covers the preparation for a welding certification in shielded metal arc welding (SMAW), tungsten inert gas, and metal inert gas arc welding.
Justification:	Mandatory Revision
Academic Career:	• Credit
Mode of Delivery:	
Author:	Curtis G Potter
Course Family:	

Academic Senate Discipline

Primary Discipline:	• Welding
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

- Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Course is not a support course

General Education and C-ID

General Education Status (CB25)

Not Applicable

Transferability

Transferable to CSU only

Transferability Status

Approved

Units and Hours

Summary

Minimum Credit Units (CB07)	3
Maximum Credit Units (CB06)	3
Total Course In-Class (Contact) Hours	126
Total Course Out-of-Class Hours	36
Total Student Learning Hours	162

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

☐ Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	1	2
Laboratory Hours	6	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54
Course In-Class (Contact) Hours	
Lecture	18
Laboratory	108
Studio	0
Total	126

Course Out-of-Class Hours

Lecture	36
Laboratory	0
Studio	0
Total	36

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Prerequisite

WELD123 - Occupational Welding III (in-development)

Objectives

- Perform certification standard weldments in the welding process of their choice with emphasis on shielded metal arc welding, flux cored arc welding, or tungsten inert gaswelding.
- Critique and evaluate weldments after proper destructive or non-destructive testing procedures have been implemented.
- Demonstrate a working knowledge of all the welding processes taught in the shop that apply to a viable job skill.
- Visually determine if correct or incorrect welding procedures or manipulations were conducted on specific weldments, and what counter-measures if any would bring it up to code.
- Communicate in writing, steps necessary to fabricate a part from conception to completion.

Entry Standards

Entry Standards

Course Limitations

Cross Listed or Equivalent Course

Specifications

Methods of Instruction

Methods of Instruction	Laboratory
Methods of Instruction	Lecture
Methods of Instruction	Multimedia
Methods of Instruction	Demonstrations

Out of Class Assignments

- Essay describing the process used to complete final project
- Final project (e.g. fillet weld on a tee-joint out of position using ARC/MIG process)
- Peer analyze welding assignments

Methods of Evaluation	Rationale
Exam/Quiz/Test	Comprehensive unit examinations
Exam/Quiz/Test	Certification-type' welds will be tested similar to actual testing conditions
Exam/Quiz/Test	Final exam

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Bowditch, William A.	Welding Fundamentals	Goodheart-Willcox	2022	978-1-64564-693-8

Other Instructional Materials (i.e. OER, handouts)

No Value

Materials Fee

No value

Learning Outcomes and Objectives

Course Objectives

Simulate actual certification weld conditions and perform the manipulative skills necessary to complete the test, start to finish, following testing procedures.

Demonstrate a working knowledge of S.M.A.W., G.T.A.W., G.M.A.W., F.C.A.W., O.F.W., P.A.C., welding process applicable to entry level in the welding industry.

Complete written information needed on a job application regarding practical job experience and certification information.

Show a written understanding of welding theory and applications through objective testing procedures.

Evaluate through critical thinking, all the welding processes covered, and determine which area to concentrate in, in the job market place.

SLOs

Perform and show multiple welding positions while working safely using personal protective equipment during procedure.

Expected Outcome Performance: 70.0

ILOs Core ILOs	Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

Illustrate critical thinking in evaluating work assignments with proper equipment and technique.

Expected Outcome Performance: 70.0

ILOs Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.

Identify and show simulation of actual certification weld conditions while using manipulating skills to complete test.

Expected Outcome Performance: 70.0

ILOs Core ILOs	Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

Review of Blueprints (14 hours)

- Reading Welding symbols
- Shop math and layout procedures
- Alphabet of lines
- Sketching

Methods of Identifying Metals (2 hours)

Basic Welding Design (2 hours)

Total hours: 18

Laboratory/Studio Content

Advanced Metallic Arc Welding Procedures (40 hours)

- Welding on 3/8" certification-type plates in all positions using E6010, E7018, E7024 electrodes
- Testing procedures on certification welds

Hard Facing Using Metallic Process (4 hours)

Welding Cast Iron (4 hours)

Welding Stainless Steel (4 hours)

Welding Aluminum (4 hours)

Advanced Oxyacetylene Process (18 hours)

- Hard facing
- Welding steel in overhead position
- Review assignments of welding in all positions using the O/A method

Advanced T.I.G. Welding Processes (18 hours)

- Vertical, horizontal overhead welding of aluminum

Review Testing of Welds (4 hours)

- Guided bend test
- Tensile test

Review Testing of Welds (12 hours)

- Physical properties of metals
- Classification of steels
- Classification of aluminum
- Annealing and stress relief
- Tempering Effects of alloying

Total hours: 108

Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

GCC Major Requirements

No Value

GCC General Education Graduation Requirements

No Value

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Resources

Did you contact your departmental library liaison?

Yes

If yes, who is your departmental library liason?

Adina Lerner (Technology & Aviation, Visual & Performing Arts)

Did you contact the DEIA liaison?

Yes

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value