

WELD 311A: INTRODUCTION TO SHIELDED METAL ARC WELDING

New Course Proposal

Date Submitted: Tue, 10 Dec 2019 21:06:00 GMT

Originator

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Name(s)

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Justification / Rationale

Noncredit mirror of WELD 011A. WELD 311A, WELD 311B and WELD 311C will provide a short term vocational program leading to employment opportunities as Shielded Metal Arc (SMAW) welders.

Effective Term

Spring 2021

Credit Status

Noncredit

Subject

WELD - Welding

Course Number

311A

Full Course Title

Introduction to Shielded Metal Arc Welding

Short Title

INTRO SMAW WELDING

Discipline

Disciplines List

Welding

Modality

Face-to-Face

Catalog Description

This course covers basic or beginning level Shielded Metal Arc Welding (SMAW) welding. This course includes safe work practices, safety in the welding industry, welding equipment selection, beginning technical drawings used in the welding industry, measuring and cutting, the five basic welds, and thermal cutting processes including Oxyacetylene Cutting (OFC) and Plasma. Students will demonstrate the ability to weld the five basic welds (Butt, Lap, Outside corner, Tee, and Edge) in the horizontal and flat positions using the SMAW process.

Schedule Description

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Non-credit Hours

108

Lecture Units

0

Lab Units

0

In-class Hours

72

Out-of-class Hours

36

Total Semester Hours

108

Override Description

Noncredit override. Noncredit does not have lecture and lab hours.

Required Text and Other Instructional Materials**Resource Type**

Book

Open Educational Resource

No

Author

Jeffus, Larry

Title

Welding: Principles and Applications

Edition

8th

City

NY

Publisher

Cengage Learning

Year

2017

College Level

Yes

Flesch-Kincaid Level

12

ISBN #

9781305494695

Class Size Maximum

25

Course Content

1. Classroom introduction of the following:

- Sources of electricity for welding
- The welding circuit
- Proper grounding

- Fundamentals of arc welding
- Stringer beads
- Weave beads
- Multi-pass welds
- Joint preparation
- Setup of SMAW welding machine
- Safe working practices using cutting and welding tools
- Safe use cut-off saw
- Safe use of grinder for grinding and cutting
- Plasma cutting
- Oxyacetylene cutting

Course Objectives

	Objectives
Objective 1	Explain how each of the major welding processes works and list the factors that must be considered before a welding process is selected.
Objective 2	Use personal protective equipment purposed for welders and evaluate the types of injuries that can occur and methods to prevent injuries.
Objective 3	Integrate the proper use and maintenance of tools and equipment.
Objective 4	Select the proper welding cable size, proper electrode size, and proper heat settings to make a high-quality weld.
Objective 5	Demonstrate how to make each of the five basic welds using the SMAW process in both the flat and horizontal positions.
Objective 6	Using a set of drawings and determine each item shown, its dimensioning, and why a drawing may be scaled, including the major parts of a weld symbol.
Objective 7	Demonstrate the ability to strike an arc at any given point.
Objective 8	Evaluate the quality of an existing weld by looking for evidence of the factors that cause low-quality welds, including arc blow, poor lead clamping, improper current, overheating welds and using too long or too short of an arc length.
Objective 9	Compare a leading electrode angle to a trailing electrode angle and identify the proper electrodes for each.
Objective 10	Categorize the five major types of welding joints.

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Accurately measure, cut, and fit metal to prepare it for welding.
Outcome 2	Demonstrate proper welding techniques using SMAW equipment in the flat and horizontal positions.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Skilled Practice at a Workstation	Students are given assigned projects with accompanying technical drawings. Instructor assists students with symbols and other questions on the technical drawings. Students are expected to cut and prepare metal and to provide a good fit-up prior to final welding.
Lecture	The instructor uses Google Slides to provide direct instruction at the beginning of the scheduled class.
Self-exploration	Students are expected to read assigned chapters, answer chapter review questions, and be prepared for mid-term and final exams.
Discussion	During direct discussion, students are asked questions and discussion is encouraged.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Written homework	Chapter reviews	Out of Class Only
Laboratory projects	Student work samples	In Class Only

Presentations/student demonstration observations	Skill demonstration – lab work. Students will be assigned a series of shop projects to be completed in the shop.	In Class Only
Mid-term and final evaluations	Both mid-term and final are in multiple choice format	In Class Only
Student participation/contribution	Welding reflection packet and instructor evaluation. Students are expected to display good work habits, punctuality, and clean-up procedures.	In Class Only

Assignments

Other In-class Assignments

1. Class discussion.
2. Group interaction and presentation.
3. Laboratory assignments/Welding projects.

Other Out-of-class Assignments

1. Reading assignments: Students are required to read four selected chapters from the textbook and to answer chapter review questions for each chapter.
2. Students are expected to use the materials from their chapter review work to study and prepare for mid-term and final tests.

Grade Methods

Pass/No Pass Only

MIS Course Data

CIP Code

48.0508 - Welding Technology/Welder.

TOP Code

095650 - Welding Technology

SAM Code

C - Clearly Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Other Non-credit Enhanced Funding

Approved Special Class

Not special class

Noncredit Category

Short-Term Vocational

Funding Agency Category

Not Applicable

Program Status

Program Applicable

Transfer Status

Not transferable

General Education Status

Not applicable

Support Course Status

Course is not a support course

Allow Audit

No

Repeatability

Yes

Repeatability Limit

NC

Repeat Type

Noncredit

Justification

Noncredit courses are repeatable until students determine they have achieved the objectives and outcomes of the course.

Materials Fee

No

Additional Fees?

No

Approvals**Curriculum Committee Approval Date**

3/03/2020

Academic Senate Approval Date

3/12/2020

Board of Trustees Approval Date

5/15/2020

Chancellor's Office Approval Date

7/16/2020

Course Control Number

CCC000618918

Programs referencing this course

Shielded Metal Arc Welding Certificate of Completion (<http://catalog.collegeofthedesert.eduundefined?key=318/>)