STATE UNIVERSITY OF NEW YORK

COLLEGE OF TECHNOLOGY

CANTON, NEW YORK

MASTER SYLLABUS
COURSE NUMBER – COURSE NAME
WELD 102 – SMAW (Stick) and Gouging

Created by: Christopher Mayville

Updated by:

Canino School of Engineering Technology

Department: Mechanical & Energy Technology

Semester/Year: Spring 2021

A. **TITLE**: SMAW (Stick) and Gouging

B. **COURSE NUMBER:** WELD 102

C. **CREDIT HOURS: (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)**

 # Credit Hours: 4

 # Lecture Hours: 2 **per week**

 # Lab Hours: 4 **per week**

Other: **per week**

Course Length: 15 **Weeks**

D. **WRITING INTENSIVE COURSE**: Yes ☐ No ☒

E. **GER CATEGORY: None:** ☒ **Yes:** GER

***If course satisfies more than one*:** GER

F. **SEMESTER(S) OFFERED: Fall** ☒ **Spring** ☐ **Fall & Spring** ☐

G. **COURSE DESCRIPTION:**

In this course, students learn about Shielded Metal Arc Welding with an overview and use of multiple electrode materials. All positions and procedures are taught and practiced as they apply to each electrode, to include gouging.

H. **PRE-REQUISITES: None ☒ Yes ☐ If yes, list below:**

CO-REQUISITES: None ☒ Yes ☐ If yes, list below:

I. STUDENT LEARNING OUTCOMES: (*see key below*)

By the end of this course, the student will be able to:

Course Student Learning Outcome [SLO]	***Program Student Learning Outcome [PSLO]***	***GER*** *[If Applicable]*	***ISLO & SUBSETS***	
Identify how welding currents are applied based on weld parameters.	2		2-Crit Think ISLO ISLO	PS Subsets Subsets Subsets
Explain how to correct various welding problems that might be encountered.	2		2-Crit Think ISLO ISLO	IA Subsets Subsets Subsets
Select the appropriate electrode according to requirements of a specific welding job.	2		2-Crit Think ISLO ISLO	PS Subsets Subsets Subsets
Successfully perform welds on butt joints, edge welds, outside corner joints, lap joints, tee joints, and fillet welds requiring multiple passes.	4		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Successfully perform welds in the flat, horizontal, vertical, and overhead positions.	4		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Complete welds on flat plate, pipe, and sheet metal.	4		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
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KEY	Institutional Student Learning Outcomes [ISLO 1 – 5]
ISLO #	**ISLO & Subsets**
1	**Communication Skills** Oral [O], Written [W]
2	**Critical Thinking** *Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]*
3	**Foundational Skills** *Information Management [IM], Quantitative Lit,/Reasoning [QTR]*
4	**Social Responsibility** *Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]*
5	**Industry, Professional, Discipline Specific Knowledge and Skills**

*Include program objectives if applicable. Please consult with Program Coordinator

J. **APPLIED LEARNING COMPONENT:** Yes ☒ No ☐

If YES, select one or more of the following categories:

- ☒ Classroom/Lab
- ☐ Internship
- ☐ Clinical Placement
- ☐ Practicum
- ☐ Service Learning
- ☐ Community Service

- ☐ Civic Engagement
- ☐ Creative Works/Senior Project
- ☐ Research
- ☐ Entrepreneurship
  (program, class, project)

K. TEXTS:

Walker, John R. and Polanin, W. Richard. (2016). Shielded Metal Arc Welding. Tinley Park, IL: Goodheart-Wilcox.

L. REFERENCES:

None

M. EQUIPMENT: None ☐ Needed: Standard welding lab equipment as well as transformer and inverter type SMA welders capable of producing AC and DC current.

N. GRADING METHOD: A-F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS:

Homework, quizzes, tests, lab exercises, and hands on practical exams

P. DETAILED COURSE OUTLINE:

1. Introduction to Shielded Metal Arc Welding and Welding Safety

2. Shielded Metal Arc Welding Equipment, Setup, and Operation

Power Sources

Welding Currents and Voltage

10. Welding Problems

11. Welding Round Stock

12. Welding Pipe

13. Cutting with Arc

14. Hard Surfacing

15. Weld Inspection

Q. LABORATORY OUTLINE: None ☐ Yes ☒

1. Preparing to Weld

2. Stringer Beads

3. Joint Preparation

4. Welding Butt Joints

5. Welding Lap Joints

6. Welding Tee Joints

7. Welding Multi-pass Filet Welds

8. Welding in the Horizontal Position

9. Welding in the Vertical Position

10. Welding in the Overhead Position

11. Welding Pipe

12. Arc Welding Aluminum

13. Hard Surfacing

14. Cutting With Arc