

**STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK**



**MASTER SYLLABUS
COURSE NUMBER – COURSE NAME
WELD 211 – Blacksmithing and Ornamental Fabrication**

Created by: Christopher Mayville

Updated by:

**Canino School of Engineering Technology
Department: Mechanical & Energy Technology
Semester/Year: Spring 2021**

A. TITLE: Blacksmithing and Ornamental Fabrication

B. COURSE NUMBER: WELD 211

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

Credit Hours: 3

Lecture Hours: 1 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:

Casting, forging, heat treating, and blacksmithing practices are covered.

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

WELD 101 and WELD 112

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:

<u>Course Student Learning Outcome</u> <u>[SLO]</u>	<u>Program Student</u> <u>Learning</u> <u>Outcome</u> <u>[PSLO]</u>	<u>GER</u> <u>[If</u> <u>Applicable]</u>	<u>ISLO & SUBSETS</u>	
Identify types of metals with and without manufacturers identification marks.	2		2-Crit Think ISLO ISLO	CA Subsets Subsets Subsets
Light and operate a metal forge safely.	5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Complete a forge weld using a typical blacksmithing forge and hand tools.	4		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Perform hardening, tempering, and annealing operations, identifying when the proper heat range has been obtained and the cooling method that must be used.	4		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
Perform metal hardness testing procedures.	3		4-Soc Respons ISLO ISLO	ER Subsets Subsets Subsets
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KEY	<u>Institutional Student Learning Outcomes [ISLO 1 – 5]</u>
ISLO #	ISLO & Subsets
1	Communication Skills Oral [O], Written [W]
2	Critical Thinking <i>Critical Analysis [CA], Inquiry & Analysis [IA], Problem Solving [PS]</i>
3	Foundational Skills <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
4	Social Responsibility <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
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:

Richards, William Allyn. (2016). Forging of Iron and Steel- A text Book for the Use of Studetns in Colleges, Secondary School and the Shop. Owen Press.

Lillico, J. W. (2015). Blacksmith's Manual Illustrated. Rimbault Press.

L. REFERENCES:

None

M. EQUIPMENT: None **Needed: Typical equipment for blacksmithing and heat treatment.**

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 Blacksmithing and Forging

2. Forge Designs and Fuels

3. Blacksmithing Tools and Equipment
4. Drawing, Bending, and Twisting
5. Splitting, Punching, and Riveting
6. Forge Welding
7. Hardening, Tempering, and Annealing
8. Harness Testing
9. Metal Identification

Q. LABORATORY OUTLINE: None Yes

1. Forge Safety and Starting the Forge
2. Drawing, Bending, and Twisting
3. Splitting, Punching, and Riveting
4. Forge Welding
5. Hardening, Tempering, and Annealing
6. Harness Testing
7. Metal Identification