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:

<table>
<thead>
<tr>
<th>Course Student Learning Outcome [SLO]</th>
<th>Program Student Learning Outcome [PSLO]</th>
<th>GER [If Applicable]</th>
<th>ISLO &amp; SUBSETS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify types of metals with and without manufacturers identification marks.</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light and operate a metal forge safely.</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete a forge weld using a typical blacksmithing forge and hand tools.</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform hardening, tempering, and annealing operations, identifying when the proper heat range has been obtained and the cooling method that must be used.</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform metal hardness testing procedures.</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2-Crit Think ISLO ISLO

5-Ind, Prof, Disc, Know Skills ISLO ISLO

5-Ind, Prof, Disc, Know Skills ISLO ISLO

4-Soc Respons ISLO ISLO

ER ISLO ISLO ISLO

ISLO ISLO ISLO

ISLO ISLO ISLO

ISLO ISLO ISLO

ISLO ISLO ISLO

ISLO ISLO ISLO

ISLO ISLO ISLO
### Institutional Student Learning Outcomes [ISLO 1 – 5]

<table>
<thead>
<tr>
<th>ISLO #</th>
<th>ISLO &amp; Subsets</th>
</tr>
</thead>
</table>
| 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:**


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