

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



**MASTER SYLLABUS  
WELD 201 – GTAW (TIG)**

**Created by:** Cullen Haskins – 10/22/2020

**Updated by:**

**CANINO SCHOOL OF ENGINEERING TECHNOLOGY  
MECHANICAL ENGINEERING TECHNOLOGY  
FALL 2020**

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**MECHANICAL ENGINEERING TECNOLOGY**

**FALL 2020**

A. **TITLE:** GTAW (TIG)

B. **COURSE NUMBER:** WELD 201

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

**# Credit Hours: 4**

**# Lecture Hours per Week: 2**

**# Lab Hours per Week: 4**

**Other per Week: 0**

**Course Length (# of Weeks): 15**

D. **WRITING INTENSIVE COURSE:** No

E. **GER CATEGORY:** N/A

F. **SEMESTER(S) OFFERED:** Fall

G. **COURSE DESCRIPTION:**

In this course, students learn the basic technology/equipment as well as the practical skills required for Gas Tungsten Arc Welding of both ferrous and non-ferrous metals.

H. **PRE-REQUISITES/CO-REQUISITES:**

a. Pre-requisite(s): WELD 101, WELD 102

b. Co-requisite(s): None

c. Pre- or co-requisite(s): None

**I. STUDENT LEARNING OUTCOMES:**

<u>Course Student Learning Outcome [SLO]</u>	<u>PSLO</u>	<u>GER</u>	<u>ISLO</u>
a. Demonstrate technical understanding of GTAW concepts and equipment.	2		2PS
b. Demonstrate the practical ability to use GTAW equipment to produce quality welds with both ferrous and non-ferrous metals.	4		5

<b>KEY</b>	<b><u>Institutional Student Learning Outcomes</u></b> <b><u>[ISLO 1 – 5]</u></b>
<b>ISLO #</b>	<b>ISLO &amp; Subsets</b>
<b>1</b>	<b>Communication Skills</b> Oral [O], Written [W]
<b>2</b>	<b>Critical Thinking</b> <i>Critical Analysis [CA], Inquiry &amp; Analysis [IA], Problem Solving [PS]</i>
<b>3</b>	<b>Foundational Skills</b> <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
<b>4</b>	<b>Social Responsibility</b> <i>Ethical Reasoning [ER], Global Learning [GL],</i>

	<i>Intercultural Knowledge [IK], Teamwork [T]</i>
<b>5</b>	<b>Industry, Professional, Discipline Specific Knowledge and Skills</b>

J. **APPLIED LEARNING COMPONENT:**      Yes  X       No

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

Classroom/Lab  X

Civic Engagement

Internship

Creative Works/Senior Project

Clinical Practicum

Research

Practicum

Entrepreneurship

Service Learning

(program, class, project)

Community Service

K. **TEXTS:** Gas Tungsten Arc Welding Handbook, 6<sup>th</sup> Edition, ISBN 9781645641377

L. **REFERENCES:** N/A

M. **EQUIPMENT:** N/A

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

- Homework
- Quizzes
- Tests
- Lab Exercises/documentation
- Practical evaluation of skills

P. **DETAILED COURSE OUTLINE:**

Content is divided into 14 weeks. Based on the text indicated above.

1. Gas Tungsten Arc Welding History and Safety, & Power Sources
2. Auxiliary Equipment and Systems, & GTAW Shielding Gases and Filler Metals
3. Weld Joints and Weld Types, & Tooling
4. Weld Preparation and Equipment Setup
5. Manual Welding Techniques
6. Manual Welding of Aluminum
7. Manual Welding of Stainless Steel
8. Manual Welding of Magnesium
9. Manual Welding of Copper and Copper Alloys
10. Manual Welding of Nickel, Nickel Alloys, and Cobalt Alloys
11. Manual Welding of Titanium
12. Manual Welding of Dissimilar Metals
13. Manual Welding of Pipe
14. Semiautomatic and Automatic Welding, & Weld Inspection and Repair

Q. **LABORATORY OUTLINE:**

By Lab Number

1. Lab Orientation and Safety
2. Power Sources
3. Auxiliary Equipment and Systems
4. GTAW Shielding Gases and Filler Metals
5. Weld Joints and Weld Types, & Tooling 1
6. Weld Joints and Weld Types, & Tooling 2
7. Weld Preparation and Equipment Setup 1
8. Weld Preparation and Equipment Setup 2
9. Manual Welding Techniques 1
10. Manual Welding Techniques 2
11. Manual Welding of Aluminum 1
12. Manual Welding of Aluminum 2
13. Manual Welding of Stainless Steel 1
14. Manual Welding of Stainless Steel 2
15. Manual Welding of Magnesium 1
16. Manual Welding of Magnesium 2
17. Manual Welding of Copper and Copper Alloys 1
18. Manual Welding of Copper and Copper Alloys 2
19. Manual Welding of Nickel, Nickel Alloys, and Cobalt Alloys 1
20. Manual Welding of Nickel, Nickel Alloys, and Cobalt Alloys 2
21. Manual Welding of Titanium 1
22. Manual Welding of Titanium 2
23. Manual Welding of Dissimilar Metals 1
24. Manual Welding of Dissimilar Metals 2
25. Manual Welding of Pipe 1
26. Manual Welding of Pipe 2
27. Semiautomatic and Automatic Welding
28. Weld Inspection and Repair