Course Number and Title	WL 103 BLUEPRINT READING AND METALLURGY

Credit Hours	3

Course Description	This course is designed to teach a basic understanding of welding symbols used on blueprints and the study of ferrous and nonferrous metals from the ore to the finished product. Emphasis on metal alloys, heat treating, hard surfacing, welding techniques, forging, foundry processes, and mechanical properties of metal, including hardness, machinability, and ductility.

Prerequisite(s) and/or Corequisite(s)	

Required Textbooks/References/Course Materials:

Modern Welding Lab Workbook	12th	Althouse, Andrew D.	Goodheart-Wilcox Co.	1635636876
Modern Welding	12th	Althouse, Andrew D.	Goodheart-Wilcox Co.	1635636868

	General Education Outcomes
1	Utilize written and verbal language to discuss and comprehend information, incorporating a variety of technologies, such as text, data, and images (written language, verbal language, and information technology).
2	Identify and interpret relevant information in order to formulate an opinion or conclusion (critical thinking).
3	Demonstrate and communicate computational methods and mathematical reasoning in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate) (quantitative literacy and fluency).
4	Communicate in appropriate ways with those who are culturally diverse (intercultural competence).

	Program/Department Outcomes
1	Prepare students to become safe and competent welders
2	Provide opportunities to possess communication and critical thinking skills
3	Demonstrate responsible professional conduct and behavior
4	Effectively communicate
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	Course Outcomes (CO)	Bloom's Domain for CO (C, A, P), Category, and Level	Program/ Department Outcome(s)	Written Language	Verbal Language	Information Technology	Critical Thinking	Quantitative Literacy and Fluency	Intercultural Competence
1	Demonstrate understanding of imperial and metric system	C- Remembering (1)	1,2,3,4	1	1	0	0	1	0
2	Demonstrate understanding of basic math (adding and subtracting fractions and decimals)	C- Remembering (1)	1,2,3,4	1	1	0	0	1	0
3	Understand and interpret blueprint symbols and drawing lines	C- Understanding (2)	1,2,3,4	0	1	0	1	1	0
4	Identify metals by appearance, weight, color, spark testing (when appropriate), and numeric codes and color codes	C- Understanding (2)	1,2,3,4	0	1	0	1	0	0
5	Identify and discuss the five branches of metallurgy and the three branches of metallurgical engineering	C- Understanding (2)	1,2,3,4	0	1	0	1	0	0
6	Identify and discuss the physical properties of metals such as hardness, machinability, and ductility	C- Remembering (1)	1,2,3,4	0	1	0	1	0	0
7									
8									
9									
10									

Bloom's Domain Legend
C = Cognitive
A = Affective
P = Psychomotor

General Education Outcome Legend
2 = Included and Measurable
1 = Introduced and/or Minimally Addressed and Not Measurable
0 = Not included

Approved: May 2021
Reviewed: November 11, 2021