4/14/2025	DATE	TEC	DIVISION
☑	REQUIRED COURSE	☐	NEW COURSE
☐	ELECTIVE COURSE	☑	REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	WLD-041		**TITLE:** *(30 Characters Max)*	Metal Cutting and Fabrication							
SEM CR HRS:	2.0	**Lecture:**	1.0	**Lab:**	2.0	**ICCB Lab:**	2.0	**ECH:**	3.0		
Course Level:	☐ Gen Ed/IAI ☐ Baccalaureate/Non-IAI ☑ Career/Technical ☐ Dev Ed/Not in Degree Audit			**Clinical Practicum:**	0.0	**Work-based Learning:**	0.0	**WBL ECH:**	0.0		
Course PCS & CIP:	12 - 48.0508		**IAI Code**	N/A				**Contact Hours (Minutes/Week)**			
Repeatable (Y/N):	N	**Pass/Fail (Y/N):**	N	**Variable Credit (Y/N):**	N	**Min:**		**Max:**		**16 Wks**	150	**8 Wks**	300
Prerequisites:	None										
Corequisites:	None										
Catalog Description: (40 Word Limit)	This course is designed to provide an understanding of metal cutting and fabricating processes and weld joint design.										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Equipment and safety	1	2		
Manual oxy-fuel cutting	2	4		
Guided oxy-fuel cutting	1	2		
Plasma arc cutting	2	4		
Carbon arc cutting	1	2		
Sheet metal layout	1	2		
Shearing metals	1	1		
Bending and shaping metals	1	2		
Grinding and finishing metals	1	2		
Weld joint design	1	2		
Laser, waterjet and other processes	2	4		
Weldment assembly	1	3		
TOTAL	15	30	0	0

EVALUATION							
QUIZZES	☑	EXAMS	☑	ORAL PRES	☐	PAPERS	☐
LAB WORK	☑	PROJECTS	☐	COMP FINAL	☑	OTHER	☐

COURSE MATERIALS		
TITLE:	*Welding Principals and Practices*	
AUTHOR:	Edward Bohnart	
PUBLISHER:	McGraw Hill	
VOLUME/EDITION/URL:	6th edition	
COPYRIGHT DATE:	2024	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:

Equipment and safety	3	1. Discuss safe handling of cutting equipment and identify components. 2. Demonstrate proper use and inspection of personal protection equipment (PPE) 3. Demonstrate proper safe operation practices in work area. 4. Demonstrate proper use and inspection of ventilation equipment. 5. Demonstrate proper Hot Zone operation. 6. Demonstrate proper work actions for working in confined spaces. 7. Demonstrate proper use of precautionary labeling and MSDS information. 8. Demonstrate proper inspection and operation of equipment used for each welding and thermal cutting process used. (This is best done as a part of the process module/unit for each of the required welding or thermal cutting processes.)
Manual oxy-fuel cutting	6	1. Perform safety inspections of manual OFC equipment and accessories. 2. Make minor external repairs to manual OFC equipment and accessories. 3. Set up for manual OFC operations on carbon steel. 4. Operate manual OFC equipment on carbon steel. 5. Perform straight, square edge cutting operations in the flat position on carbon steel. 6. Perform shape, square edge cutting operations in the flat position on carbon steel. 7. Perform straight, bevel edge cutting operations in the flat position on carbon steel. 8. Perform scarfing and gouging operations to remove base and weld metal, in flat and horizontal positions on carbon steel.
Guided oxy-fuel cutting	3	1. Perform safety inspections of mechanized OFC equipment and accessories. 2. Make minor external repairs to mechanized OFC equipment and accessories. 3. Set up for mechanized OFC operations on carbon steel. 4. Operate mechanized OFC equipment on carbon steel. 5. Perform straight, square edge cutting operations in the flat position on carbon steel. 6. Perform straight, bevel edge cutting operations in the flat position on carbon steel.
Plasma arc cutting	6	1. Perform safety inspections of manual PAC equipment and accessories. 2. Make minor external repairs to manual PAC equipment and accessories. 3. Set up for manual PAC operations on carbon steel, austenitic stainless steel and aluminum. 4. Operate manual PAC equipment on carbon steel, austenitic stainless steel and aluminum. 5. Perform straight, square edge cutting operations, in the flat position on carbon steel, austenitic stainless steel and aluminum. 6. Perform shape, square edge cutting operations in the flat position on carbon steel, austenitic stainless steel and aluminum.
Carbon arc cutting	3	1. Perform safety inspections of manual CAC-A equipment and accessories. 2. Make minor external repairs to manual CAC-A equipment and accessories. 3. Set up for manual CAC-A scarfing and gouging operations on carbon steel. 4. Operate manual CAC-A equipment on carbon steel. 5. Perform scarfing and gouging operations to remove base and weld metal, in the flat and horizontal position on carbon steel.

Sheet metal layout	3	1. Illustrate transfer of shapes from a blueprint to metal.
Shearing metals	2	1. Demonstrate proper use of a metal shear.
Bending and shaping metals	3	1. Demonstrate bending and shaping metals using cold and heat processes.
Grinding and finishing metals	3	1. Demonstrate proper use of grinders and sanders for finishing.
Weld joint design	3	1. Discuss types of weld joints and their applications.
Laser, waterjet and other processes	6	1. Describe various modern metal cutting processes used in industry.
Weldment assembly	4	1. Complete a welding project from start to finish.
	45	

Outcomes*	At the successful completion of this course, students will be able to:
Course Outcome 1	Demonstrate proper operation of a manual cutting torch to properly cut carbon steel.
Course Outcome 2	Demonstrate proper use of a metal shear.
Course Outcome 3	Demonstrate proper use of grinders and sanders.
Primary Laker Learning Competency	Information & Technology Literacy: Students evaluate information effectively using the appropriate technological tools.
Secondary Laker Learning Competency	Creative Thinking & Problem Solving: Students think creatively to solve problems.

**Course and program outcomes will be used in the software for outcomes assessment and should include at least 1 primary and 1 secondary Laker Learning Competency. Limit to 3-5.*