

Course Title: Metals 2

Department: Manufacturing and Engineering

Grades: 10-12 Credits: .5

Course Overview/Description

In Metals 2, the student continues their training in the Metalworking and fabrication field. Approximately ½ of the course will be the FVTC Intro and Safety Welding course as dual credit and free to the student. This will focus on the basics of welding safety and prepare them for the FVTC Welding program. The course will focus on enhancing their skills by welding in different positions and more complicated processes, as well as advancements in fabrication. Students will have a very large portion of the course dedicated to Projects in Metals 2 and those projects are tailored to meet the student's interests and career goals.

Course Materials

Scope and Sequence

Timeframe	Unit	Instructional Topics
3 days	Intro to Welding	<ul style="list-style-type: none">• History• Electricity of Welding• Material ID
4 days	Safety Shop Safety Equipment Safety	<ul style="list-style-type: none">• PPE• Fumes and Particulates• Compressed Gas Cylinder• Fire and Explosion• Electrical Safety• Shears• Saws• Grinders•
8 Days	Measurement	<ul style="list-style-type: none">• Inch Rule• Fraction / Decimal Equivalent• Metric Rule• Tolerances• Dial Caliper
15 Days	GMAW	<ul style="list-style-type: none">• Intro / What is MIG Welding• MIG Welding Tips• GMAW Welding Equipment• GMAW Welding -Vertical/Horizontal Lap/Tee/Butt•

Last Updated:

15 Days	SMAW	<ul style="list-style-type: none"> ● Intro / What is Stick Welding ● SMAW Tips ● SMAW Safety ● SMAW Welding Horizontal / Vertical Lap/Tee/Butt
5 Days	GTAW	<ul style="list-style-type: none"> ● What is TIG welding ● TIG welding Tips ● GTAW Welding Tee/Lap
5 Days	Cutting	<ul style="list-style-type: none"> ● Plasma Arc Cutting ● CNC Plasma
30 Days	Fabrication	<ul style="list-style-type: none"> ● Tools <ul style="list-style-type: none"> ○ Square ○ Jig Carts ○ Clamps ○ Tubing Notcher ● Equipment <ul style="list-style-type: none"> ○ Abrasive Saw ○ Band Saw ○ Cold Cut Saw ○ Shears ● Projects <ul style="list-style-type: none"> ○ Plans ○ Costs ○ Analysis

Essential Standards:

I can identify safety and health protections and procedures that are critical to worker well-being.	MNF1.a.7.h
I can identify, select and safely use tools, machines, products and systems for specific tasks	MNF1.a
I can demonstrate the use of Standard Measuring System to 1/16"	AC1.b.9.m
I can demonstrate the ability to choose proper welding supplies given the process	MNF1.g.8.h
I can identify different types of welding machines	MFN1.g.9.h
I can demonstrate safety and choose the proper safety equipment given the process(ie, oxy-acetelyn, GMAW, SMAW, GTAW, Ect)	MFNF1.g.11.h
I can identify different types of welding joints and beable to perform the welds (ie, flat, horizontal, vertical, and overhead)	MNF1.g.12.h
I can demonstrate the proper safety and use plasma cutting equipment	MNF1.h.7.h