Manufacturing 1A & B Syllabus

Course Length: Two Semesters

Pre-Requisite: There is no Pre-Requisite for Manufacturing 1A. Successful completion of Manufacturing 1A is required to take Manufacturing 1B

Grade Level: 10-12

Course Objectives:

This course will explore the metal fabrication industry with a variety of activities designed to develop metal working skills, measurement, and problem solving skills that can lead to the development of career in the metalworking industry.

Textbook:

Modern Metalworking with the accompanying workbook

Welding Skills

All units use a variety of teaching strategies and learning techniques to address all types of learners. Each unit used reading, writing, and hands on activities designed to develop skills that are either brand new or existing. Evaluations are based on the activities and range from informal or formal self-evaluations, peer evaluations, to instructor based evaluations

General Course Schedule:

Shop Tools and Safety – This unit introduces the student to basic tool usage and shop safety. It is designed to give the student the base for proper use of basic hand tool. How to use and care for tools safely and properly so the tool can last a lifetime without damage or injury. This unit will also address shop safety. It will stress personal behavior to create a learning atmosphere that is safe for all students so they are able to develop the skills needed to succeed in the metal working industry. The students will learn how to care for minor injuries and understand how to prevent injuries.

Measurement – The students will learn to use the many different types of measurement devices used in the metal industry from the basic bench rule to precision measurement tools. The student will learn how to handle each appropriately to keep the accuracy of the tool.

Sheet Metal – The students will learn how sheet metal is used in the metal working industry and what careers possibilities are available for people with sheet metal skills. The student will learn the process of sheet metal development. The student will produce a simple sheet metal project using the variety of sheet metal tools from hand tools to industrial sheers.

Welding – The students will learn the basics of the different styles of welding fabrication. They will develop skills in oxygen/acetylene gas welding, cutting torch, arc welding, and MIG welding. The students will learn the appropriate safety equipment and safety procedures for each style of welding. The students will be able to perform the different welding operations safely and accurately.

Machining – The students will learn how to use the different pieces of equipment use in basic machining aspects of the metal industry. They will learn how to set up and machine different materials and products. They will learn to use the drill press, metal lathe, vertical mill, and the grinders safely and efficiently.

Casting – The students will learn how and why products are cast. They will learn to create a mold and pour an aluminum casting. They will use previously learned techniques to finish the casting.