

FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT

Course Outline Metal 2

Date: May 2002

Subject Area: Technology

Proposed Grade Level(s): 10-12

Course Length: 1 Year

Grading: A-F

Number of Credits: 5/semester

Prerequisites: Metal 1 with a Grade of 'C' or better

COURSE DESCRIPTION:

Students acquire extensive knowledge and skills in the use of metal fabrication tools and equipment. Students will work in the areas of sheet metal, gas, arc, MIG, and TIG welding, machining, and ornamental ironwork. Age-appropriate activities are designed for students to construct a number of useful articles with personal aesthetic values using a variety of materials, equipment, and constructive processes. Design, planning, and manipulative activities will be an integral part of the course. Safety is emphasized throughout the course in the use of hand tools and power equipment. All students will benefit from this course regardless of their respective learning styles, learning rates, or gender.

GENERAL GOALS/PURPOSES:

- Students will understand various manufacturing systems that require hand and machine tools. They will select and use appropriate conventional tools, machines, and inspection devices to manufacture parts and/or products.
- Students will understand various welding machines and welding processes used in manufacturing, maintenance, and repair. They will perform welding processes to complete a fabrication, assembly, and/or repair in accordance with practices prescribed by the American Welding Society.
- Students will understand the operation and functions of CNC machine tools in production and prototype work. They will select appropriate processes and machines to produce and/or manufacture parts and products efficiently.
- Students will work safely and be able to recognize potential hazards.
- Students will develop interpersonal skills, work habits, and acquire information that will lead to employment.

STUDENT READING COMPONENT:

Students will locate, understand, and interpret written information in documents such as manuals, graphs, and textbooks.

STUDENT WRITING COMPONENT:

Students will communicate thoughts, ideas, information, and messages in writing through letters, directions, reports, graphs, and flowcharts.

STUDENT ORAL COMPONENT:

Students will communicate orally in giving directions to a project and short presentations.

STUDENT MATH COMPONENT:

Students will perform basic and advance computations and approaches to practical problems by choosing appropriately from a variety of mathematical techniques.

DETAILED UNITS OF INSTRUCTION:

1. Orientation
2. Safety
3. Project Designing and Planning
4. Welding Certification-ARC
5. Welding Certification-MIG
6. Welding Certification TIG
7. Operation and Functions of CNC Machining
8. Pre-Apprenticeship Skills
9. Applied Mathematics

THIS COURSE WILL PREPARE STUDENTS FOR THE HSEE AND/OR THE FCUSD EXIT EXAMS:

Math, Reading, Writing

LAB FEE, IF REQUIRED: \$20 per year for take home products

SUBJECT AREA CONTENT STANDARDS TO BE ADDRESSED:

Industrial and Technology Education Content and Performance Standards 1996:

Standard 6 Conventional Manufacturing Systems

Standard 9 Welding Processes

Standard 10 Machine Tool Processes

DISTRICT ESLR'S TO BE ADDRESSED:

When students complete an Industrial and Technology Education course, they will be:

1. **Self-directed Learners** who will be able to solve engineering problems;
2. **Effective Communicators** who can express technology concepts to others effectively;
3. **Quality Producers** who can solve technology problems in a neat and organized manner;
4. **Constructive Thinkers** who are able to approach complex technology problems in a organized, logical, and systematic fashion;
5. **Collaborative Workers** who can work in teams to accomplish a task; and
6. **Responsible Citizens** who accept responsibility for their actions.