Welding

Active as of Fall Semester 2016

I. General Information

1. Course Title:
Introduction to Welding

2. Course Prefix & Number:
WELD 1100

3. Course Credits and Contact Hours:
Credits: 2

Lecture Hours: 1

Lab Hours: 2

4. Course Description:
This course will provide students with the basic fundamental skills required to understand and utilize the equipment and processes of basic welding. Students will identify and place in to practice a common set of safety standards utilized with Oxy-Acetylene Welding (OAW), Gas Metal Arc Welding (GMAW), and Shielded Metal Arc Welding (SMAW). Students will develop and place into practice the necessary skills to properly operate and trouble shoot welding equipment.

5. Placement Tests Required:

6. Prerequisite Courses:
There are no prerequisites for this course.

9. Co-requisite Courses:
WELD 1160 Welding Theory 2

II. Transfer and Articulation

III. Course Purpose

1. Program-Applicable Courses – This course is required for the following program(s):
Welding & Fabrication AAS
Welding & Fabrication Diploma

IV. Learning Outcomes

1. College-Wide Outcomes

College-Wide Outcomes/Competencies	Students will be able to:
Analyze and follow a sequence of operations	Identify key components and order of events to properly weld.
Apply abstract ideas to concrete situations	Apply practical knowledge to joint design and selection of proper electrode.
Utilize appropriate technology	Calculate the proper welding parameters when using a multi-process welders.

2. Course Specific Outcomes - Students will be able to achieve the following measurable goals upon completion of the course:

- Recognize industry safety standards and procedures common in the work place;
- List and identify four basic weld joints and different welding positions;
- Recognize the shielded metal arc welding process;
- Determine the proper steps in welding with oxy-acetylene equipment;
- Distinguish proper gas metal arc welding parameters; and
- Identify the proper work angle, proper travel angle, and proper travel speed given specific welding tasks.

V. Topical Outline

Listed below are major areas of content typically covered in this course.
Lecture Sessions

1. Safety in welding
    - Burns
    - Face, eye, and ear protection
    - Respiratory and ventilation
    - General welding PPE
    - Fire prevention
    - General safety practices
2. SMAW Equipment
    - Current and polarity
    - Power sources
    - Equipment setup
3. Flame cutting
    - Cutting torches
    - Setup and operation
    - Flame types and adjustments
4. Plasma cutting
    - Plasma torch and consumables
    - Setup and operation
    - Cutting applications
5. GMAW equipment
    - Equipment setup
    - Weld metal transfer
    - Consumables
    - Shielding gas

2. Laboratory/Studio Sessions

1. Seat time (learning to watch the Puddle)
    - 6011
    - 6013
    - GMAW ER70S-6
2. SMAW

    - Lap
    - Tee
    - Groove
    - Multi-Pass
3. GMAW
    - Lap
    - Tee
    - Groove
    - Multi-Pass
4. Thermal Cutting
    - OAC
    - PAC

VI. Textbook and Supplemental Reading Materials

Welding Principles & Applications by Larry Jeffus