

COCONINO COMMUNITY COLLEGE

COURSE OUTLINE

Prepared by: Gary Gencarelle

Revised by: David Ramos

Revised by: David Ramos

Status: Permanent

Effective: Fall 2014

August 19, 2009

Expires: Spring 2013

Extended: Spring 2013

Spring 2014

A. Identification:

1. Subject Area: Welding (WLD)
2. Course Number: 111
3. Course Title: Introduction to Artistic Blacksmithing
4. Credit Hours: 3
5. Catalog Description: Provides an introduction to hand forging low carbon and tool steel, design, techniques, safe working habits, and methods used in blacksmithing. The class will include blacksmithing tools and processes, hammer control techniques, hand forging theory and metalworking practice. Student Safety Equipment: Each student will be required to have suitable clothing: leather work boots above the ankle, cotton pants and shirts and some kind of cotton (welding) cap is suggested. Prerequisites: Emancipated adult with manual dexterity, physical ability and mobility sufficient to accomplish course content. One Lecture. Three lab. May be taken for S/U credit with instructor approval.

B. Course Goals: To explain the materials, types of forge, and hand tools used in blacksmithing; understand blacksmithing design elements and principles; describe basic techniques used in blacksmithing; practice correct equipment safety habits; and demonstrate familiarity with basic ferrous metal theory.

C. Course Outcomes: Students will:

1. practice correct equipment safety habits;
2. explain the materials, fuels, and hand tools used in blacksmithing;
3. demonstrate familiarity with basic ferrous metal theory;
4. understand blacksmithing design elements and principles;
5. And describe basic techniques used in blacksmithing.

D. Assessment of Course Outcomes: Department & faculty level review of: student results from a variety of testing instruments and completion of projects; and class integration with Metal working programs and techniques to accomplish such.

E. Course Content:

1. Metal procedures in blacksmithing including: Health and Safety Issues; Proper Use of Tools and Equipment; Blacksmith shop layout and safety.
2. Basic tools and processes of blacksmithing including: Forge, anvil and hand tool identification; Gas Forges; Anvils; Hammers; Tongs; Cutting and Forming hand Tools; Other Cutting and Forming Tools.
3. Basic Techniques in Blacksmithing including: Drawing Out; Upsetting; Bending; Twisting; Punching; Riveting; Chisel Cutting; Hammer Control and Texturing: Hand hammering and the 5 different types of hammer blows; Hand Forge Welding; Grinding/ Filing/Sanding; Metal finishing; Basic tool making and Heat treating tool steel.
4. Layout and Design of Projects including: Hand forging simple designs: Wall Hook & Flesh Fork; Slit chisel; Animal Heads; Floral Designs.