

ART 0033 - ART METAL CASTING

Catalog Description

Hours: 90 (36 lecture, 54 laboratory)

Description: Foundations of art casting techniques and skills with an emphasis on the elements of art and principles of design. Introduction to mold making, wax working, traditional and nontraditional metal casting methods, chasing finishing for bronze and aluminum. (CSU)

Course Student Learning Outcomes

- CSLO #1: Critique artworks using appropriate and applicable visual art vocabulary and studio terminology.
- CSLO #2: Create original cast metal works by process of idea development, design, execution, finish, presentation, and installation.
- CSLO #3: Create original cast metal work using appropriate tools and technology.
- CSLO #4: Apply proper material and tool handling, use, storage and clean up safety standards in the classroom.

Effective Term

Fall 2024

Course Type

Credit - Degree-applicable

Contact Hours

90

Outside of Class Hours

72

Total Student Learning Hours

162

Course Objectives

Lecture Objectives:

1. Analyze works through demonstrations and lectures, and discussion of idea development, design, execution, finishing, presentation, and installation.
2. Identify, discuss, and use appropriate tools and technology to create cast metal art works including:
 - a. mold making
 - b. wax working
 - c. investments
 - d. melting furnace
 - e. metal pouring equipment
 - f. casting – bronze and aluminum
 - g. modern welding equipment
 - h. chasing & finishing tools
3. Identify safe methods for using metalworking, casting, welding and related metalworking equipment, as well as chemicals needed for finishes.

4. Explain and define basic visual vocabulary for analyzing metal cast art works
5. Examine and discuss the historical aspects of both design and techniques in metal art.

Laboratory Objectives:

1. Create individual works by a process of concept development, design, execution, finish, presentation, and installation.
2. Select, describe, and use appropriate tools and technology to create cast metal art works including:
 - a. mold making
 - b. wax working
 - c. investments
 - d. melting furnace
 - e. metal pouring equipment
 - f. casting- bronze and aluminum
 - g. modern welding equipment
 - h. chasing & finishing tools
3. Select, describe, and apply proper and safe methods for using metalworking, casting, welding and related metalworking equipment, as well as chemicals needed for finishes.
4. Organize and process information/tasks both orally and in written formats.
5. Critique art work both orally and in written formats using proper terms.

General Education Information

- Approved College Associate Degree GE Applicability
 - AA/AS - Fine Arts
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

Methods of Evaluation

- Classroom Discussions
 - Example: Students will be evaluated during formal critiques of their artwork. The evaluation will include the student's use of the appropriate visual vocabulary of casting methods and design techniques used in executing their project.
- Objective Examinations
 - Example: Students will be required to take a multiple choice & short answer safety exam after taking part in the safety demonstration. sample question: How many pounds of bronze are needed in exchange for a wax piece that is 3.5 pounds? What are the ratios of plaster, sand and fiber glass needed in an investment mold?
- Projects
 - Example: Students will be evaluated with a rubric for the full process of creation and execution of their assignments. This will include concept development, informative artist and process research, the creation of a positive wax form either by casting in a mold or sculpting, casting and surface finishing.
- Reports
 - Example: Attend open studios, gallery or museum including metal artwork and write up a short paper describing the work, the information provided and analysis of how the work was created, and an analysis of how the information fits within the class. Additionally, they can make a short synopsis to the rest of the class.
- Skill Demonstrations

- Example: Students will be required to create both a ridged mold and a flexible mold. They will have to provide the positive form the mold is made from, the molds themselves for observation of accuracy of approach, and multiple casts from each of their molds. Craftsmanship of both the molds and castings that come from the molds will be observed and evaluated.

Repeatable

No

Methods of Instruction

- Laboratory
- Lecture/Discussion
- Distance Learning

Lab:

1. The instructor will demonstrate safe practices for using equipment and administer a safety quiz after the lecture. Students will outline the steps for safety using the foundry tongs and all casting equipment.

Lecture:

1. The instructor will provide a lecture on the various types of mold-making methods. After the lecture students will discuss the various methods and requirements used for mold making.

Distance Learning

1. Visually oriented slide lecture demonstrating the creation of a mold making and the reproduction of an object in cast metal via the creation of a mold. Video examples of contemporary artists using mold making in their cast metal artworks. Students will then be guided through a step by step process of creating the casts for sculptural forms in wax then cast in bronze or aluminum. Students submit progress to the instructor for feedback. Completed projects are posted to the discussion board and critiqued through written format using appropriate vocabulary and terminology pertaining to the basic elements and organizing principles of three-dimensional art. Active and relevant participation includes students responding to each other's comments in the discussion board.

Typical Out of Class Assignments

Reading Assignments

1. Read text pertaining to lost wax casting and outline steps leading to the pour in their journal. 2. Students read contemporary article on metal artists and discuss in groups about the individual artist's concepts and inspirations, methods of casting and execution, and installation of their work.

Writing, Problem Solving or Performance

1. Students will be required to visit an art gallery with cast works and write an analysis of the art processes used and background information of the artist. 2. Students will research a metal artist and present the artists information including background, inspirations, methodologies and individual works.

Other (Term projects, research papers, portfolios, etc.)

Out of class work will include both library and internet research. Portfolio of students finished works will be presented during formal critiques. The writing assignment will require the student to develop a course notebook to include lecture notes, concept drawings, and out of class research.

Required Materials

- Complete Casting Handbook: Metal Casting Processes, Metallurgy, Techniques and Design
 - Author: John Campbell
 - Publisher: Butterworth-Heinemann
 - Publication Date: 2015
 - Text Edition: 2nd
 - Classic Textbook?:
 - OER Link:
 - OER:
- A Universe of Metal Sculpture
 - Author: Henry Harvey
 - Publisher: Schiffer Publishing
 - Publication Date: 2010
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- Cast: Art and Objects Made Using Humanity's Most Transformational Process
 - Author: Jen Townsend (Author), Renée Zettle-Sterling (Author)
 - Publisher: Schiffer Craft
 - Publication Date: 2017
 - Text Edition: 1st
 - Classic Textbook?:
 - OER Link:
 - OER:
- Practical Guide to Metal Casting: Complete Beginners guide to get you started on metal casting
 - Author: Billy Madison
 - Publisher: Independently published
 - Publication Date: January 26, 2022
 - Text Edition: 1
 - Classic Textbook?:
 - OER Link:
 - OER:
- From Design To Production: Learn Sculpting Techniques, Fabrication, Silicone Mold Making
 - Author: Susanna Capata
 - Publisher: Independently published
 - Publication Date: February 21, 2023
 - Text Edition: 1
 - Classic Textbook?: No
 - OER Link:
 - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.

steel toe boots, safety glasses, leather gloves, ear plugs, cotton/natural fiber clothing