

MACH 61.2 Course Outline as of Spring 2019**CATALOG INFORMATION**

Dept and Nbr: MACH 61.2 Title: NON-FERROUS METALLURGY

Full Title: Non Ferrous Metallurgy

Last Reviewed: 9/27/2010

| Units | | Course Hours per Week | | Nbr of Weeks | Course Hours Total | |
|---------|------|-----------------------|------|--------------|--------------------|-------|
| Maximum | 3.00 | Lecture Scheduled | 2.00 | 17.5 | Lecture Scheduled | 35.00 |
| Minimum | 3.00 | Lab Scheduled | 3.00 | 6 | Lab Scheduled | 52.50 |
| | | Contact DHR | 0 | | Contact DHR | 0 |
| | | Contact Total | 5.00 | | Contact Total | 87.50 |
| | | Non-contact DHR | 0 | | Non-contact DHR | 0 |

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: MACH 61B

Catalog Description:

Study of non-ferrous metals including alloying, heat treating, testing and applications in industry.

Prerequisites/Corequisites:**Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:**Schedule of Classes Information:**

Description: Study of non-ferrous metals including alloying, heat treating, testing and applications in industry. (Grade Only)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

| | | | |
|-------------------|----------------------|------------|-----------|
| AS Degree: | Area | Effective: | Inactive: |
| CSU GE: | Transfer Area | Effective: | Inactive: |

| | | | |
|---------------|----------------------|------------|-----------|
| IGETC: | Transfer Area | Effective: | Inactive: |
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| CSU Transfer: | Effective: | Inactive: |
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| UC Transfer: | Effective: | Inactive: |
|---------------------|------------|-----------|

CID:

Certificate/Major Applicable:

Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:

Upon completion of this course, students will be able to:

1. Identify non-ferrous metals from periodic table.
2. Identify non-ferrous metals by experimentation.
3. Describe methods of heat treat for non-ferrous metals and alloys.
4. Explain various techniques applicable to welding of non-ferrous metals and alloys.
5. Describe applications of design, manufacturing, and fabrication of non-ferrous metals, basic plastics, and ceramics.

Topics and Scope:

1. Introduction and review of ferrous metals
2. History and developments of non-ferrous metals and alloys
3. Uses and applications of non-ferrous metals and alloys
4. Testing equipment procedures
5. Research and design methods
6. Library use and research of database for non-ferrous alloys
7. Numbering systems for non-ferrous metals and alloys
8. Heat treatment of mediums and solutions
9. Basic properties of polymers
10. Basic properties of ceramics
11. Various methods of welding non-ferrous metals and alloys

Assignment:

1. Reading assignments of 7 to 15 pages in each chapter
2. Quizzes at each class meeting
3. 7 to 10 laboratory assignments to be completed during lab sessions
4. 1 to 2 mid-term exams
5. A semester group (or individual) project to be presented electronically followed by an oral presentation to the class; the semester project can be substituted with a mid-term paper, as per instructions by instructor, consisting of library research.

6. Final exam

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Semester project

Writing
20 - 25%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab assignments

Problem solving
15 - 25%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations
0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Exams: multiple choice, true/false, matching items, completion

Exams
55 - 60%

Other: Includes any assessment tools that do not logically fit into the above categories.

None

Other Category
0 - 0%

Representative Textbooks and Materials:

Metallurgy Fundamental, by Brandt and Warner, The Goodheart-Wilcox Company, Inc. 5th ed., 2009.

Instructor prepared materials.