



Syllabus

MET 101 Materials and Processes I

General Information

Date

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Author

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Department

Science and Technology

Course Prefix

MET

Course Number

101

Course Title

Materials and Processes I

Course Information

Credit Hours

3

Lecture Contact Hours

2

Lab Contact Hours

2

Other Contact Hours

0

Catalog Description

A first course in materials and processes. A general introduction to engineering materials and modern processes. Topics include mechanical, physical, and chemical properties of ferrous and non-ferrous metals and processes such as machining, casting, forming, powder metallurgy, and welding. Laboratory time will introduce the students to common manufacturing tools in a hands-on environment.

Key Assessment

This course does not contain a Key Assessment for any programs

Prerequisites

None

Co-requisites

None

Grading Scheme

Letter

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed category

None

FLCC Values

Institutional Learning Outcomes Addressed by the Course

Vitality

Inquiry

Perseverance

Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Classify and describe the various ferrous and non-ferrous metals chemical and mechanical properties
2. Identify the various processes used to form ferrous and non-ferrous metals
3. Compare accuracy and precision of various measurement instruments
4. Use a machine lathe and mill to cut metals

Program Affiliation

This course is required as a core program course in the following program

AAS Instrumentation and Control Technologies

AAS Mechanical Technology

Outline of Topics Covered

- I. Topic Covered
 - a. An overview of materials and processes
 - b. The nature of materials
 - c. Mechanical properties of metals
 - d. Physical properties of metals
 - e. Chemical properties of metals
 - f. Metal corrosion
 - g. Ferrous metals
 - h. Non-ferrous metals
 - i. Heat treatment of metals
 - j. Fundamentals of metal casting
 - k. Metal forming
 - l. Powder metallurgy
 - m. Welding
 - n. Basic measuring and layout instruments
 - o. Vernier caliper and micrometer
 - p. Precision gage blocks and sine bar
 - q. Theory of metal machining
 - r. Machining metal on a lathe
 - s. Machining metal on a mill