



Syllabus

MET 104 Manufacturing Processes

General Information

Date

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Author

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Department

Science and Technology

Course Prefix

MET

Course Number

104

Course Title

Manufacturing Processes

Course Information

Credit Hours

3

Lecture Contact Hours

2

Lab Contact Hours

2

Other Contact Hours

0

Catalog Description

The basic equipment, processes and services required to produce products are studied. This course is designed to give the student the knowledge and vocabulary to comprehend the complex and inter-related design and manufacturing functions that must be accomplished to produce the end product. The processes covered include the making metal casting, plastics production, hot and cold forming, machining, fastening, non-traditional machining, grinding, etc. Equipment covered in the lab include: lathes, grinders, milling machines, band saws, drill presses, precision measurement devices, basic CNC machine operations and programming will be introduced. Safety and proper manufacturing procedures will be emphasized. Statistical quality control concepts will be introduced.

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

Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Compare accuracy and precision of various measurement instruments.
2. Use a manual lathe and mill to cut metals and non-metals.
3. Perform a quality control analysis.
4. Program the CNC lathe and mill units to produce a sample component.

Program Affiliation

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

AAS Mechanical Technology

Outline of Topics Covered

General Outline of Topics Covered:

a. Theory of machining

b. Casting

i. Sand

ii. Lost Wax

iii. Permanent Mold

iv. Injection Molding

c. Metal forming

i. Cold Forming

1. Bending

2. Rolling

3. Stamping

4. Shaping

ii. Hot Forming

1. Rolling

2. Extrusion

3. Forging

4. Drawing

iii. Powder metallurgy

d. Turning

e. Milling

- f. Boring/Drilling
- g. Assembly Processes
 - i. Semi-Permanent
 - 1. Bolts/Screws
 - 2. Rivets
 - ii. Permanent
 - 1. Welding
 - 2. Adhesive
- h. Basic measuring and layout instruments
 - i. Vernier caliper and micrometer
 - j. Precision gage blocks and sine bar
- k. Lab Activities:
 - i. Machining metal on a lathe
 - ii. Machining metal on a mill
 - iii. CNC programming
 - iv. CNC lathe operations
 - v. CNC mill operations