



Course Outline

2026-2027 Catalog

MFG 10 - Introduction to Manufacturing Equipment

Catalog Description

Transfer Status: CSU

Corequisite: MFG 12, MFG 14, MFG 16

Unit(s): 8.00

Lecture: 85.00 Contact hours/170.00 Out of class hours/255.00 Total hours/5.00 Unit(s)

Lab: 153.00 Contact hours/0.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

Total: 238.00 Contact hours/170.00 Out of class hours/408.00 Total hours/8.00 Unit(s)

Course Description: This course is designed to provide an introduction to basic manufacturing equipment as it relates to advanced manufacturing. Emphasis will be placed on developing safety skills as well as the terminology, history and future of the advanced manufacturing industry. Students will develop necessary skills in basic measurement and trade math, proper tool selection, identifying equipment types, equipment maintenance, drawing interpretation, creating and processing work orders, quality assurance and efficient application of the knowledge of proper feeds, speeds, and pressures. These areas of instruction will be reinforced by hands-on application in several performance lab exercises.

Objectives

Upon successful completion of this course, the student should be able to:

1. Practice safety skills that are required on job-sites.
2. Explain the basic principles of proper tool selection.
3. Convert units of measurement from the inch-pound system to the metric systems, and vice-versa.
4. Describe the principles that guide the selection of proper materials.
5. Identify career paths available in advanced manufacturing.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Introduction and Safety	5.00
Advanced Manufacturing History	4.00
Advanced Manufacturing Future	4.00
Advanced Manufacturing Terminology	4.00
Basic Measuring and Applied Trade Math	8.00
Communication Skills	6.00
Tooling I.D.	6.00
Tooling Selection	10.00
Types of Materials	10.00
Types of Equipment	6.00
Equipment Maintenance & Troubleshooting	6.00
Drawings and Work Orders	4.00
Feeds, Speed, and Pressures	8.00
Quality Assurance	4.00
Total Hours:	
85.00	

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Introduction and Safety	5.00
Advanced Manufacturing History	4.00
Advanced Manufacturing Future	4.00
Advanced Manufacturing Terminology	4.00
Basic Measuring and Applied Trade Math	24.00
Communication Skills and Careers	10.00
Tooling I.D.	20.00
Tooling Selection	20.00

Topics	Lab Hrs
Types of Materials	10.00
Types of Equipment	12.00
Equipment Maintenance & Troubleshooting	10.00
Drawings and Work Orders	10.00
Feeds, Speed, and Pressures	10.00
Quality Assurance	10.00
Total Hours: 153.00	

Methods of Instruction

- A. Demonstrations
- B. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- C. Laboratory Experiments
- D. Lecture
- E. Multimedia Presentations

Methods of Evaluation

- A. Exams/Tests
- B. Quizzes
- C. Homework
- D. Lab Projects

Examples of Assignments

Reading Assignments

1. Read module 1 and be prepared to discuss in class.
2. Read assigned trade journal article and be prepared to discuss in class. Read the module on metric conversions and be prepared to discuss in class.

Writing Assignments

1. Write an order of operations for service techniques used as it relates to field inspections of equipment.
2. Write a two-page essay, explaining how the trade journal article can be implemented in workplace safety and how it relates to the class.

Out-of-Class Assignments

1. Research online the proper process for replacing a band saw blade on the assigned saw using manufactures' publications and be prepared to discuss in class
2. Research OSHA publications for the use and safety of power tools properly and write a one-page essay.

Recommended Materials of Instruction

Schmid, S., & Kalpakjian, S. (2014). Manufacturing Engineering and Technology. *Pearson, 7th.*

Other Learning Materials

All tools listed in the Advanced Manufacturing Program Guide.

Minimum Qualifications

Machine Tool Technology
Manufacturing Technology

Created/Revised by: Peacock, Miles

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