



Course Outline

2026-2027 Catalog

MFG 16 - Introduction to the Process of Modeling to Production

Catalog Description

Transfer Status: CSU

Corequisite: MFG 10, MFG 12, MFG 14

Unit(s): 3.00

Lecture: 34.00 Contact hours/68.00 Out of class hours/102.00 Total hours/2.00 Unit(s)

Lab: 51.00 Contact hours/0.00 Out of class hours/51.00 Total hours/1.00 Unit(s)

Total: 85.00 Contact hours/68.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

Course Description: This course is designed to provide an introduction of modeling to production as it relates to advanced manufacturing. Emphasis will be placed on developing basic safety skills, trade math, and the industry terminology, history, and future. 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 production software used in advanced manufacturing.
3. Describe the principles of manufacturing modeling software.
4. Identify types of materials and different uses within the advanced manufacturing industry.
5. Convert units of measurement from the standard system to the metric systems, and vice-versa.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Introduction and Safety	2.00
Industry History	2.00
Industry Future	2.00
Industry Terminology	2.00
Communication Skills	2.00
Basic Computer Operations	2.00
File Types and Conversions	2.00
Manufacturing Modeling Software	2.00
Production Software	2.00
Types of Materials	2.00
Equipment Data Input	2.00
Equipment Selection	2.00
Cost Estimating	2.00
Production Ability	2.00
Equipment Maintenance & Troubleshooting	2.00
Drawings and Work Orders	2.00
Quality Assurance	2.00

Total Hours: 34.00

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Introduction and Safety	2.00
Industry History	2.00
Industry Future	2.00
Industry Terminology	2.00
Communication Skills	2.00
Basic Computer Operations	4.00
File Types and Conversions	3.00
Manufacturing Modeling Software	4.00

Topics	Lab Hrs
Production Software	4.00
Types of Materials	4.00
Equipment Data Input	4.00
Equipment Selection	4.00
Cost Estimating	3.00
Production Ability	3.00
Equipment Maintenance & Troubleshooting	4.00
Drawings and Work Orders	2.00
Quality Assurance	2.00
Total Hours: 51.00	

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 the module introducing jigs and be prepared to discuss in class.
2. Read assigned trade journal article 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 modeling the assigned part within the assigned software program 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.*

Minimum Qualifications

Machine Tool Technology
Manufacturing Technology

Created/Revised by: Peacock, Miles

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