



Course Outline

2026-2027 Catalog

MFG 46 - Advanced Internship with Local Trade Company

Catalog Description

Transfer Status: CSU

Prerequisite: MFG 30, MFG 32, MFG 34, MFG 36

Corequisite: MFG 40, MFG 42, MFG 44

Unit(s): 4.00

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

Lab: 102.00 Contact hours/0.00 Out of class hours/102.00 Total hours/2.00 Unit(s)

Total: 136.00 Contact hours/68.00 Out of class hours/204.00 Total hours/4.00 Unit(s)

Course Description: This course is designed to develop students skills by simulations and field internship experiences required to meet industry standards and ISO 9000 (International Organization for Standardization), learn manufacturing standards and Cal OSHA standards and practices. Emphasis will be placed on developing safety skills, production flows, shop operations, equipment operations and capabilities, tooling limitations, product design, product assembly, cost estimating, finishing, and management skills. 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. Demonstrate the use and care of appropriate personal protective equipment (PPE).
3. Identify tooling for the CNC Press Brake.
4. Demonstrate how to enter new tooling into equipment software for production.
5. Demonstrate how to estimate a production run.
6. Identify how to reduce production costs.
7. Describe the selected tooling limitations based upon based materials.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Introduction and Safety	1.50
Communication Skills	1.50
Production Flow	3.00
Shop Operations	3.00
Equipment Operations and Capabilities	3.00
Tooling Limitations	4.00
Product Design	3.00
Product Assembly	3.00
Cost Estimating	3.00
Finishing	3.00
Basic Management Skill	3.00
Quality Assurance	3.00

Total Hours: 34.00

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Introduction and Safety	2.00
Communication Skills	6.00
Production Flow	10.00
Shop Operations	10.00
Equipment Operations and Capabilities	8.00
Tooling Limitations	10.00
Product Design	14.00
Product Assembly	10.00

Topics	Lab Hrs
Cost Estimating	10.00
Finishing	8.00
Basic Management Skill	8.00
Quality Assurance	6.00
Total Hours: 102.00	

Methods of Instruction

- A. Demonstrations
- B. Homework: Students are required to complete one hour of outside-of-class homework for every two hours of activity
- 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 cost estimating 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 the steps required for inputting tooling into equipment software.
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 manufacturing facility layout using recognized publications and be prepared to discuss in class.
2. Research OSHA publications for the use and safety of equipment safety zones for a robotic welder 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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