



Course Outline

2026-2027 Catalog

MFG 36 - Internship with Local Trade Company

Catalog Description

Transfer Status: CSU

Prerequisite: MFG 20, MFG 22, MFG 24, MFG 26

Corequisite: MFG 30, MFG 32, MFG 34

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, troubleshooting skills, production, shop flow, and equipment operations and capabilities. 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 CNC equipment and its capability.
4. Identify manual equipment located in the shop.
5. Demonstrate proper forklift operations.
6. Describe how to perform periodic servicing of manufacturing equipment.
7. Describe the procedures for quality control of manufactured parts.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Introduction and Safety	1.50
Application of Trade Math	1.50
Operation of CNC Mill	3.00
Operation of CNC Lathe	3.00
Operation of Semi-Automatic Welding Process	3.00
Operation of Robotic Welding Process	4.00
Operation of Manual Production Equipment	3.00
Modeling Software	3.00
Equipment Software	3.00
Production Software	3.00
Application of Assembly	3.00
Quality Assurance	3.00
Total Hours:	34.00

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Introduction and Safety	2.00
Application of Trade Math	4.00
Operation of CNC Mill	10.00
Operation of CNC Lathe	10.00
Operation of Semi-Automatic Welding Process	8.00
Operation of Robotic Welding Process	14.00
Operation of Manual Production Equipment	8.00
Modeling Software	10.00
Equipment Software	10.00

<u>Topics</u>	<u>Lab Hrs</u>
Production Software	10.00
Application of Assembly	8.00
Quality Assurance	8.00
Total Hours: 102.00	

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 on semi-automatic welding process 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 replacing a band saw blade.
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 setting the speed and feed on a CNC Lathe 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

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Date: 02/25/2019