



Course Outline

2026-2027 Catalog

ITEC 65 - Introduction to Process Technologies

Catalog Description

Transfer Status: CSU

Unit(s): 2.00

Lecture: 17.00 Contact hours/34.00 Out of class hours/51.00 Total hours/1.00 Unit(s)

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

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

Course Description: This course is designed to provide pre-employment training for process technologies and mechatronics technology. Emphasis will be placed on developing basic safety skills, tool identification, machine operation, mechanical, electrical and pneumatic systems, with soft skills training. 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. Use and care for appropriate personal protective equipment (PPE).
2. Practice safety skills that are required in manufacturing facilities.
3. Interpret information and instructions presented in both verbal and written form.
4. Define basic hand tools based on their applications and types.
5. Solve mechanical, electrical and pneumatic equipment problems using critical thinking skills.
6. Describe basic electrical circuits in the context of AC and DC electricity.
7. Use electrical measurement devices in AC and DC applications including voltage, resistance, current and continuity.
8. Identify basic mechanical applications using levers, cams, turnbuckles, pulleys and gears.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Basic Safety	1.00
Introduction to Hand Tools	1.00
Introduction to Technical Drawings	1.00
Basic Communication Skills	1.00
Basic Employability Skills	1.00
Basic Electricity	1.00
Basic Mechanical Concepts	1.00
Basic Machine Operation and Troubleshooting	3.50
Basic Measurement Skills	1.00
Adjustment of Electro-Pneumatic Systems	3.50
Industrial Technology and Manufacturing Trade Careers	2.00
Total Hours:	17.00

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Industrial Technology and Manufacturing Trade Careers	3.00
Adjustment of Electro-Pneumatic Systems	9.00
Basic Measurement Skills	3.00
Basic Machine Operation and Troubleshooting	9.00
Basic Mechanical Concepts	6.00
Basic Electricity	6.00
Basic Employability Skills	3.00
Basic Communication Skills	3.00
Basic Safety	3.00
Introduction to Technical Drawings	3.00
Introduction to Hand Tools	3.00
Total Hours:	51.00

Methods of Instruction

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

Methods of Evaluation

- A. Exams/Tests
- B. Papers
- C. Projects
- D. Demonstration
- E. Homework
- F. Written Assignments

Examples of Assignments

Reading Assignments

1. Read assigned trade journal article and be prepared to discuss in class.
2. Read the selection on basic electricity and be prepared to discuss in class.

Writing Assignments

1. Write an order of operations for replacement setup for a photoelectric sensor.
2. Write a 2-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 up an electrical circuit 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 1-page essay. Complete Amatrol eLearning module 6 of assigned course and then answer the review questions at the end of the module.

Recommended Materials of Instruction

Other Learning Materials

E-learning web-based learning management system provided by Amatrol Corporation at www.learnamatrol.com. Subscription-enabled.

Minimum Qualifications

Industrial Technology
Air Conditioning, Refrigeration, Heating
Agricultural Engineering
Welding
Manufacturing Technology
Construction Technology
Engineering Support
Engineering (Masters Required)
Engineering Technology (Masters Required)

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