

# APPT 129: SPECIAL TOPICS

## Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2023
Units:	3.5
Hours:	36 lecture, 18 laboratory per quarter (54 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Plumbing/Steamfitting & Pipefitting/Air Conditioning & Refrigeration Technology Apprenticeship Programs.
Advisory:	Not open to students with credit in APPR 109.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

## Student Learning Outcomes

- A student will be able to demonstrate advanced arc welding techniques.
- A student will be able to perform basic computer assisted drawing techniques.
- A student will be able to demonstrate management techniques through organizing a complex piping project.

## Description

Study of special topics: students study pipe trade-related software and computer assisted drawing. Students develop advanced welding skills. Course introduces concepts of digital controls. Course prepares students to certify in repair of back flow control devices. Students further examine management techniques for planning and organizing projects.

## Course Objectives

The student will be able to:

1. Perform basic computer assisted drawing techniques
2. Make repeatable welds with computerized welder
3. Demonstrate advanced arc welding techniques
4. Describe and troubleshoot various digital control devices
5. Certify in back flow control devices
6. Demonstrate management techniques through planning and organizing a complex piping project

## Course Content

1. Perform basic computer assisted drawing techniques
  - a. AutoCAD training guide
  - b. Hands-on AutoCAD drawing projects
2. Make repeatable welds with computerized welder

- a. Develop weld program
  - b. Perform orbital weld (weld with computerized welder)
  - c. Orbital weld certification
3. Demonstrate advanced arc welding techniques
    - a. Develop templates
    - b. Hands-on oxy-fuel cutting torch projects
    - c. Hands-on arc welding projects
  4. Describe and troubleshoot various digital control devices
    - a. Introduction to DDC controls
    - b. Troubleshooting projects
  5. Certify in back flow control devices
    - a. Back flow control devices
    - b. Hands-on troubleshooting
    - c. AWWA exam
  6. Demonstrate management techniques through planning and organizing a complex piping project
    - a. UA Foreman Training
    - b. Construction project scheduling and coordination exercises
    - c. UA/MCA Foreman Certification exam

## Lab Content

1. Students will work individually and in teams to practice welding projects
2. Students will learn troubleshooting techniques for electrical control circuits

## Special Facilities and/or Equipment

1. Laboratory with personal protective equipment and welding equipment
2. Computer lab
3. When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Results of written exercises and final examination  
Satisfactory completion of hands-on projects  
Maintenance of a student's workbook with questions drawn from text  
Group and classroom participation

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture  
Lab assignment  
Group discussion  
Demonstration

## Representative Text(s) and Other Materials

International Pipe Trades Joint Training Committee, Inc.. [AutoCAD/AutoCAD LT 2013 Level 1](#). 2013.

Jeffus, Larry. [Welding Principles and Applications, 7th ed.](#). 2012.

American Technical Publishers. Building Automation Control Devices and Applications. 2008.

International Pipe Trades Joint Training Committee, Inc.. UA Foreman Training Manual. 2008.

USC, Foundation of Cross Connection Control. Manual of Cross Connection Control, 10th ed.. 2014.

Although these texts are older than the recommended 5 years they conform to national training standards and are considered seminal works in the discipline. We will adopt the next edition of each text, as it is published.

## **Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments**

1. Readings from textbook, Building Automation Control Devices and Applications
  - a. Chapter 4, HVAC System Control Devices
  - b. Chapter 4, review questions 1-10, identification and definitions of HVAC controls
2. Writing assignments given in the laboratory
  - a. Make a schematic drawing of a typical building air conditioning control system
  - b. Describe properties of each part in the system

## **Discipline(s)**

Plumbing