

**APED 367 Course Outline as of Fall 2025****CATALOG INFORMATION**

Dept and Nbr: APED 367 Title: APP PLUMBERS, HVAC, 8TH  
 Full Title: Apprentice Plumbers, HVAC/Refrigeration, Eighth Semester  
 Last Reviewed: 5/13/2024

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	18	Lecture Scheduled	54.00
Minimum	4.00	Lab Scheduled	3.00	8	Lab Scheduled	54.00
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	108.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 108.00

Total Student Learning Hours: 216.00

Title 5 Category: AA Degree Non-Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

Students will be introduced to training related to heating, ventilation, air conditioning (HVAC), and refrigeration for apprentice plumbers and pipefitters. This is the eighth semester of a ten-semester program.

**Prerequisites/Corequisites:****Recommended Preparation:****Limits on Enrollment:**

Indentured apprenticeship

**Schedule of Classes Information:**

Description: Students will be introduced to training related to heating, ventilation, air conditioning (HVAC), and refrigeration for apprentice plumbers and pipefitters. This is the eighth semester of a ten-semester program. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment: Indentured apprenticeship

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:

<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
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<b>CSU Transfer:</b>	Effective:	Inactive:
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<b>UC Transfer:</b>	Effective:	Inactive:
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**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Describe and demonstrate electrical and plumbing principles and regulations related to heating, ventilation, air conditioning, and refrigeration trade
2. Apply best practices in the practical environment related to heating, ventilation, air conditioning, and refrigeration trade

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Explain, demonstrate, analyze, start, test, and balance HVAC systems
2. Define, demonstrate, and explain best practices for customer relations
3. Explain, demonstrate, define, and interpret symbols and plans for installation and service of HVAC systems

### **Topics and Scope:**

#### **I. Starting, Testing, and Balancing**

- A. Introduction to start, test, and balance HVAC procedures
- B. Evaluation of HVAC start procedures
- C. HVAC testing and troubleshooting procedures
- D. Balancing of HVAC systems

#### **II. Customer Relations**

- A. Best procedures for assisting customers
- B. Communication and customer relations

#### **III. Plans and Plan Reading**

- A. Terms and symbols used on plans
- B. Using plan schedules, elevations, and symbols in:
  1. Architectural drawings
  2. Structural drawings
  3. Mechanical drawings

4. Shop drawings  
IV. Using Plans to Coordinate with Other Trades

All topics are included in the lecture and lab portions of the course

**Assignment:**

Lecture-Related Assignments:

1. Weekly reading 10-15 pages
2. Written homework assignments (1 to 2 sets per week)
3. Project homework assignments (1 to 2 sets per week)
4. Quizzes and examinations (4 to 6 per semester)

Lab-Related Assignment:

1. Class performances and field work (on-the-job demonstrations) of skill development, safety practices, equipment, and material handling

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework assignments; field work

Problem solving  
10 - 25%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances; field work

Skill Demonstrations  
50 - 65%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes and examinations

Exams  
10 - 20%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation

Other Category  
5 - 10%

**Representative Textbooks and Materials:**

A Guide to Service Work. International Pipe Trades Joint Training Committee. 2021