APED 365 Course Outline as of Fall 2025

CATALOG INFORMATION

Dept and Nbr: APED 365 Title: APP PLUMBERS, HVAC, 6TH
Full Title: Apprentice Plumbers, HVAC/Refrigeration, Sixth 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 sixth semester of a ten-semester program.

Prerequisites/Corequisites:

Recommended Preparation:

Limits on Enrollment:
Indentured apprentice

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 sixth semester of a ten-semester program. (Grade Only)
Prerequisites/Corequisites:
Recommended:
Limits on Enrollment: Indentured apprentice

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

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**Transfer Area**	Effective:	Inactive:

CSU Transfer:	Effective:	Inactive:
UC Transfer:	Effective:	Inactive:

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. Define, interpret, use, and analyze schematic diagrams
2. Define, demonstrate, measure, and assess water flows
3. Explain, compare, demonstrate, and use steam systems

Topics and Scope:

I. Schematic Diagrams
   A. Industry definitions and symbols
   B. Manufacturing wiring diagrams
   C. Testing and troubleshooting electrical systems using wiring diagrams
II. Water Flows
   A. Terms and definitions related to water flow
   B. Basic components of water systems
   C. Water system operations
   D. Water flow instrumentation
   E. Calculation of water flow
   F. Heat transfer in water systems
   G. Water system performance analysis
III. Steam Systems
   A. Terms and definitions related to air flow
   B. Basic components of steam systems

C. Steam systems operations
D. Air flow instrumentation
E. Calculation of air flow
F. Heat transfer in steam systems
G. Steam system performance analysis

All topics are covered 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:

Steam Systems. International Pipe Trades Joint Training Committee. 2022.
Water Supply. International Pipe Trades Joint Training Committee. 2022.