HVAC A100: AIR CONDITIONING AND REFRIGERATION PRINCIPLES

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	094600 - Environmental Control Technology
Units	3 Total Units
Hours	81 Total Hours (Lecture Hours 45; Lab Hours 36)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

Course covers heat principles, heat loads, refrigeration cycle, system components, refrigerant properties, system operation, soldering and oxy-acetylene brazing. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Solder and Braze applicable HVACR components.
2. Connect gauges and record pressures to explain the refrigeration cycle in operation.
3. Use appropriate HVACR tools and instrumentation for typical industry practices.

Course Objectives

- 1. Describe refrigeration cycle.
- 2. Describe soldering and brazing techniques.
- 3. Connect gauges and record pressures.
- 4. Identify tools and instruments.
- 5. Accurately identify system components.
- 6. Describe pressure / temperature relationships.
- 7. Describe the different methods of heat transfer.

Lecture Content

Basic Refrigeration Fundamentals Heat Principles Temperature Pressure Enthalpy Heat Transfer Gas Laws Basic Refrigeration Cycle Refrigerant Properties Compressors Metering Devices Evaporators Condensers Receivers System Control Devices Basic Tools Instruments

Lab Content

See Course Content.

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Lecture, Demonstration, Lab exercises.

Reading Assignments

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Writing Assignments

N/A

Out-of-class Assignments

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Demonstration of Critical Thinking

Written examinations and lab performance evaluations.

Required Writing, Problem Solving, Skills Demonstration

N/A

Eligible Disciplines

Air conditioning, refrigeration, heating (solar energy technician): Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Air conditioning, refrigeration, heating (solar energy technician): Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Whitman, Johnson, Tomczyk. Refrigeration A/C Tech, ed. Delmar Learning, 0 Rationale: latest