HVAC A140: BUILDING AUTOMATION

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	094610 - Energy Systems 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	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S)

Course Description

Fundamental applications and design of building automation systems for HVACR. PREREQUISITE: HVAC A100 and HVAC A101. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Adjust and calibrate pneumatic system components.
2. Explain the operation of electronic control circuits using control terminology.
3. Explain the difference between an open and closed control loop.

Course Objectives

- 1. Recognize advanced control technology.
- 2. Demonstrate control applications.
- 3. Describe electronic control circuits.
- 4. Describe pneumatic control system.
- 5. Discuss a control loop.
- 6. Understand direct digital control systems.
- 7. Discuss sensitivity or gain in controls.

Lecture Content

Control Applications Types of Control Systems Pneumatic Controls Cleaning and drying of control air Control Components Direct Digital Controls (DDC) Residential Electronic Controls

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, and hands on lab activities.

Reading Assignments

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Writing Assignments

Written description of refrigeration cycle and hands on identification of all parts of a refrigeration and air conditioning system and its component parts.

Out-of-class Assignments

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Demonstration of Critical Thinking

Written testing comprised of multiple choice, true/false, fill in the blanks and hands on demonstrations of the equipment.

Required Writing, Problem Solving, Skills Demonstration

Written description of refrigeration cycle and hands on identification of all parts of a refrigeration and air conditioning system and its component parts.

Eligible Disciplines

Air conditioning, refrigeration, heating (solar energy technician): Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience. Industrial design: Any bachelor's 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 and Air Conditioning Technology, 6th ed. Delmar Learning / Cenage, 0 Rationale: latest