

HVAC A104: AIR BALANCE

| Item | Value |
|------------------------------------|---|
| Curriculum Committee Approval Date | 10/30/2024 |
| Top Code | 094600 - Environmental Control Technology |
| Units | 3 Total Units |
| Hours | 72 Total Hours (Lecture Hours 45; Lab Hours 27) |
| Total Outside of Class Hours | 0 |
| Course Credit Status | Credit: Degree Applicable (D) |
| Material Fee | No |
| Basic Skills | Not Basic Skills (N) |
| Repeatable | No |
| Open Entry/Open Exit | No |
| Grading Policy | Standard Letter (S) |

Course Description

Operation and maintenance of air conditioning and heating ducts and their controls; various methods of distribution and the means to deliver proper air flow. PREREQUISITE: HVAC A100 and HVAC A101. ADVISORY: HVAC A103 and HVAC A105. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Describe a complete air distribution system including air flow characteristics.
2. Demonstrate the use of air flow instruments and interpret results.

Course Objectives

- 1. Describe a complete air distribution system.
- 2. Describe air flow characteristics.
- 3. Demonstrate the use of air flow instruments and interpret results.
- 4. Explain the process of balancing air flow for comfort conditioning.
- 5. Take basic air measurements.
- 6. Measure air quantities.
- 7. Describe duct systems.
- 8. Describe a return air system.
- 9. Describe trouble shooting techniques.

Lecture Content

Air Distribution Standards of air flow Ductwork Air flow measurements Duct sizing Duct system Air distribution Supply air outlets Return air outlets Control Systems Basic Functions of control systems Types of control system Thermostats Ductstats Humidistats Dampers damper motors Related Equipment Zone system Single duct systems Double duct systems Pre heaters Unit vent equipment New innovations in air balance Trouble shooting

Lab Content

Air Distribution Standards of air flow Ductwork Air flow measurements Duct sizing Duct system Air distribution Supply air outlets Return air outlets Control Systems Basic Functions of control systems Types of control system Thermostats Ductstats Humidistats Dampers damper motors Related Equipment Zone system Single duct systems Double duct

systems Pre heaters Unit vent equipment New innovations in air balance Trouble shooting

Method(s) of Instruction

- Lecture (02)
- Lab (04)

Instructional Techniques

Lectures from the book (s), videos from various suppliers of equipment, hands on demonstrations of the equipment, and homework.

Reading Assignments

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Writing Assignments

Written descriptions of the various pieces of equipment involved in air balance, homework, and hands on demonstrations to validate an understanding of the instructional objectives. 1-3 hours per week

Out-of-class Assignments

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Demonstration of Critical Thinking

Written tests including multiple choice, true/false, fill in the blanks, and some hands on demonstrations of diagnostic tools.

Required Writing, Problem Solving, Skills Demonstration

Written descriptions of the various pieces of equipment involved in air balance, homework, and hands on demonstrations to validate an understanding of the instructional objectives.

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.

Other Resources

1. Handouts provided by Instructor