

APRT 149B: HVAC TESTING & BALANCING PROCEDURES (TAB-2)

Foothill College Course Outline of Record

Heading	Value
Units:	4.5
Hours:	30 lecture, 78 laboratory per quarter (108 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal Testing & Air Balance Apprenticeship Program.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- A successful student will be able to demonstrate proper procedures for balancing of HVAC air systems.

Description

Utilize skills and knowledge previously learned to apply methods of balancing HVAC systems. Balancing of systems will include both air and hydronic. Information gathered during the balancing will be used in completing reports required by the building engineer and owner.

Course Objectives

The student will be able to:

- Identify hydronic systems, components and balancing procedures.
- Demonstrate proper procedures for air balancing air systems.
- Prepare a proper test and air balance test form.

Course Content

- Identify hydronic systems, components, controls and balancing procedures
 - Heat and cool sources
 - Valves
 - Filtration
 - Sensors
 - Output devices
- Demonstrate proper procedures for air balancing air systems
 - Reference engineering data, tables and charts
 - Verify existing conditions
 - Balance by selected procedures
- Prepare a proper test and air balance test form
 - Complete measurements and calculations
 - Complete other required information

Lab Content

- Practice in test and balance procedures for air systems
- Learn introduction to balancing hydronic systems

Special Facilities and/or Equipment

Laboratory equipped with air conditioning duct and hydronic system.

Method(s) of Evaluation

- Results of written quizzes and tests
- Quality of drawings
- Comprehensive written final examination
- Maintenance of a workbook of student's daily work activities

Method(s) of Instruction

- Lecture
- Discussion
- Cooperative learning exercises
- Oral presentations
- Laboratory
- Demonstration

Representative Text(s) and Other Materials

SMACNA. HVAC Systems Test and Air Balance Manual. 3rd ed. Sheet Metal and Air Conditioning Contractors National Association, Inc., 2002.

International Training Institute for the Sheet Metal and Air Conditioning Industry. Testing, Adjusting & Balancing of Environment Systems. Alexandria, VA: International Training Institute, 2003.

NOTE: These are the standard Sheet Metal textbooks/workbooks used for this course. Although they may not be within 5 years of the required published date, they are the most current books used when teaching this course.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- An example of a reading assignment is to read on methods of airflow measurement, as assigned from the ITI Testing Adjusting and Balancing text.
- An example of a written assignment is to complete duct traverse calculations, as part of the assigned practice problems following lecture, demonstration and the above reading.

Discipline(s)

Air Conditioning, Refrigeration, Heating