

# APPRENTICESHIP - TEST, ADJUST AND BALANCING (TAB) TECHNICIAN

## Program Description

Test, Adjust and Balancing (TAB) Technician is a registered apprenticeship program offered in partnership with Sheet Metal Local 104 and Bay Area Training Fund. This 5-year apprenticeship program provides students with 216 hours per year of day or evening class instruction and paid on-the-job training with a sheet metal contractor. This is a "green" construction field that is growing due to the need for indoor air quality and energy efficiency compliance. The type of work performed can range from pressure testing, adjusting, and balancing of duct systems for energy efficiency to commissioning and completing documentation of HVAC systems in residential and commercial buildings. The work condition ranges from light physical activity to maneuvering into limited access areas with tools and equipment. Good communication skills are needed to interact with clients. Technicians are held to a code of conduct to assure quality measurements. The program offers a solid career opportunity with livable wages along with retirement and health benefits and provides highly trained and skilled workforce for students/apprentices in the HVAC industry. Per California Code of Regulations, this program is limited to students admitted to the Sheet Metal Local 104 & Bay Area Industry Training Fund's Test, Adjust, and Balancing (TAB) Technician program.

The Associate in Science in Test, Adjust and Balancing (TAB) Technician degree builds upon the Certificate of Achievement in Test, Adjust and Balancing (TAB) Technician by adding requirements for general education courses. Upon completion of the program, students will be eligible to receive an Apprenticeship Completion Certificate from the California Division of Apprenticeship Standards (DAS), and a Test and Balance Certification from International Certification Board (ICB). Career opportunities include, but are not limited to: Test, Adjust and Air Balancing technician; TABB certified supervisor; service technician; Leadership in Energy and Environmental Design (LEED) inspector; sheet metal fabricator; compliance tester; entrepreneur; HVAC educator; business agent; and training coordinator.

Learn more about the program on the [Apprenticeship website](#).

## Program Learning Outcomes

- Students will be able to read plans and equipment performance data to determine the system design.
- Students will be able to measure airflow in HVAC systems using various instruments.
- Students will be able to adjust airflow values to achieve specified pressure differentials.
- Students will be able to make adjustment to system component for optimum efficient performance.
- Students will be able to prepare an IAQ report.
- Students will be able to perform room pressure differential readings.
- Students will be able to perform HEPA filter changes to industry standards.

## Career Opportunities

Upon completion of the Test, Adjust and Balancing (TAB) Technician program, students will be eligible to receive a Certificate of Achievement in Test, Adjust and Balancing (TAB) Technician from Foothill College, an Apprenticeship Completion Certificate from the California Division of Apprenticeship Standards (DAS), and a Test and Balance Certification from International Certification Board (ICB). Career opportunities include, but are not limited to: Test, Adjust and Air Balancing technician; TABB certified supervisor; service technician; Leadership in Energy and Environmental Design (LEED) inspector; sheet metal fabricator; compliance tester; entrepreneur; HVAC educator; business agent; and training coordinator.

## Award Type(s)

- AS = Associate in Science Degree
- CA = Certificate of Achievement

## Units Required

- Major: 68.5-70
- Certificate(s): 56.5

## Associate Degree Requirements

Code	Title	Units
<b>English Proficiency</b>		
Select one of the following:		
ENGL 1A	COMPOSITION & READING	5
ENGL 1AH	HONORS COMPOSITION & READING	5
ESLL 26	ADVANCED COMPOSITION & READING	5
or equivalent		
<b>Ethnic Studies</b>		
Any course in the ETHN (Ethnic Studies) subject code, currently approved for Area F of CSU GE and Area 7 of IGETC		
<b>Mathematics Proficiency</b>		
College-level math course at or above the level of Intermediate Algebra		

A minimum of 90 units is required<sup>1</sup> to include:

- Completion of one of the following general education patterns: Foothill General Education, CSU General Education Breadth Requirements or the Intersegmental General Education Transfer Curriculum (IGETC)
- Core courses (56.5 units)
- Support courses (12-13.5 units)

<sup>1</sup> Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

**Note:** All courses pertaining to the major must be taken for a letter grade. In addition, a grade of "C" or better is required for all core and support courses used for the degree or certificate.

## Core and Support Courses

Code	Title	Units
<b>Core Courses</b>		
APSM 171A	HVAC TRADE HISTORY & INTRODUCTION TO TESTING, ADJUSTING & BALANCING	3
APSM 171B	BASICS OF AIRFLOW, HEAT ENERGY & HEAT TRANSFER	2.5
APSM 171C	SAFETY TRAINING FOR TAB APPRENTICESHIP	2.5
APSM 172A	BASIC HVAC SYSTEMS, PSYCHROMETRICS, AIR PRESSURES & MEASUREMENTS OF AIR	2.5
APSM 172B	PROPORTIONAL BALANCING	2
APSM 172C	DUCT LEAKAGE TESTING	2
APSM 173A	ELECTRICAL FUNDAMENTALS, ELECTRIC MOTORS & ROTATIONAL MEASUREMENTS	2.5
APSM 173B	TEMPERATURE MEASUREMENTS, DUCT SYSTEMS & BASIC CONTROLS	2.5
APSM 173C	HVAC FANS, FAN LAWS & V-BELT DRIVES	2.5
APSM 174A	HYDRONIC SYSTEMS, PUMPS & HYDRONIC BALANCING	2.5
APSM 174B	BALANCING DOCUMENTATION, COOLING TOWERS & TAB RELATED SKILLS	2
APSM 174C	FIRE LIFE SAFETY LEVEL 1	2.5
APSM 175A	TABB TECHNICIAN CERTIFICATION	2
APSM 175B	DDC CONTROLS & PROGRAMS	2
APSM 175C	FIRE LIFE SAFETY LEVEL 2	2.5
APSM 176A	PLANS & SPECIFICATIONS, CODES & STANDARDS	2.5
APSM 176B	BASIC REFRIGERATION & BRAZING/SOLDERING	2.5
APSM 176C	CLEAN ROOMS & HEPA FILTER TESTING	2
APSM 177A	TITLE 24 MECHANICAL ACCEPTANCE TESTING	2.5
APSM 177B	ADVANCED DDC CONTROLS/COMMISSIONING OF HVAC SYSTEMS	2
APSM 177C	ENERGY AUDITING	2.5
APSM 178A	INDOOR AIR QUALITY	2
APSM 178B	GREEN CONSTRUCTION & LEED CERTIFICATION FOR HVAC	2.5
APSM 178C	FOREMAN TRAINING/PROJECT MANAGEMENT FOR HVAC	2.5

### Support Courses

Select six courses from the following: 12-13.5

APSM 155B	AIR DISTRIBUTION & EFFICIENT DUCT DESIGN
APSM 157B	HVAC ENERGY CODES & STANDARDS
APSM 158A	INTRODUCTION TO DIRECT DIGITAL HVAC CONTROLS
APSM 179A	BUILDING & CASCADING PRESSURES/AIR CHANGE TESTING
APSM 179B	SOUND & VIBRATION IN HVAC SYSTEMS
APSM 179C	BIOLOGICAL SAFETY CABINETS/LABORATORY FUME HOODS
APSM 180A	BUILDING AUTOMATION & CONTROLS 1
APSM 180B	BUILDING AUTOMATION & CONTROLS 2
APSM 180C	BUILDING AUTOMATION & CONTROLS 3
APSM 181A	BUILDING AUTOMATION & CONTROLS 4
APSM 181B	BUILDING AUTOMATION & CONTROLS 5

APSM 181C BUILDING AUTOMATION & CONTROLS 6

Total Units

68.5-70

## Certificate Requirements

### Certificate of Achievement in Test, Adjust and Balancing (TAB) Technician

• Units: 56.5

The certificate of achievement is awarded upon completion of the core courses. General education courses are not required.

Currently offered at: Bay Area Sheet Metal JAC.