ADDENDUM

This addendum revises MIAT College of Technology
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HVACR TECHNICIAN PROGRAM

The HVACR (Heating, Ventilation, Air-conditioning and Refrigeration) Technician Program is a combination of classroom, hands-on assignments and outside/homework. The program consists of four phases: heating, ventilation, air-conditioning, and refrigeration. Students will develop troubleshooting skills, learn the proper and safe handling of potentially hazardous materials, understand how to balance ventilation systems and develop a variety of other skills necessary to perform the functions of a HVACR technician. Upon successful completion of this this program, graduates will have entry-level career opportunities in a variety of areas in the HVACR industry to include, **residential and commercial heating, air-conditioning, and refrigeration**. A sample of job titles include: AC Technician, Environmental Technician, Building Maintenance Technician, Industrial Air Handling Technician, Refrigeration Technician, and Furnace Repair Technician. The North American Technician Excellence (NATE) certificate is recognized by the HVACR industry. Graduates are eligible to take this exam for an additional fee. It has been recommended candidates should take this exam within 12 months after graduation.

HVACR Technician Program
Certificate
960 Clock Hours
57.5 Quarter Credit Hours
All Quarters are a minimum of ten calendar weeks
Day or Afternoon Program:
Full Time - 9 Months/4 Quarters/40 Weeks
Half Time - 18 Months/8 Quarters/80 Weeks

Course Number	Course Name	Clock Hours	Credit Hours
HV001	**OSHA and Basic Safety**	**66**	**4.0**
	NCCER Level I Certification in HVACR Technology A		
	OSHA Safety Training		
	Tool Safety		
	Construction		
	Math and Drawings		

Course Number	Course Name	Clock Hours	Credit Hours
HV002	**Customer Relations and Introduction to HVACR**	**54**	**3.5**
	NCCER Level I Certification in HVACR Technology B		
	Introduction to Customer Relations and Communications Skills		
	Material Handling		
	Introduction to HVACR		

Course Number	Course Name	Clock Hours	Credit Hours
HV003	**Basic Electricity**	**66**	**3.5**
	NCCER Level I Certification in HVACR Technology C		
	Basic Electricity		
	Piping Practices		
	Trade Math		

Course Number	Course Name	Clock Hours	Credit Hours
HV004	**Introduction to Heating and Cooling**	**54**	**3.0**
	NCCER Level I Certification in HVACR Technology D		
	Introduction to Heating and Cooling		
	Air Distribution Systems		

COURSE DESCRIPTIONS
HVACR TECHNICIAN PROGRAM

Course HV001 **OSHA and Basic Safety**

NCCER Level I Certification in HVACR Technology A: Introduction to Basic Safety, OSHA Safety Training, Tool Safety, Construction Math and Drawings

66 Clock Hours 4.0 Credit Hours

This class explains the OSHA safety obligations of workers, supervisors, and managers to ensure a safe workplace. In this class we will discuss the causes and results of accidents and the impact of accident costs as well as defining safe work procedures, proper use of personal protective equipment, and working with hazardous chemicals. Students will be able to identify other potential construction hazards, including hazardous material exposures. Introduces trainees to hand tools that are widely used in the construction industry, such as hammers, saws, levels, pullers, and clamps. Students will be able to explain the specific applications of each tool and show how to use them properly. Also discussed is the important safety and maintenance issues related to hand tools. This class provides detailed descriptions of commonly used power tools, such as drills, saws, grinders, and sanders and reviews the application, proper use, safety, and maintenance. Many illustrations are used to show power tools used in on-the-job settings. This class reviews basic mathematical functions and explains their applications to the construction trades. The student will be shown how to use and read various length measurement tools, including standard and metric rulers and tape measures, and the architect's and engineer's scales. This class explains decimal-fraction conversions and the metric system, using practical examples and also reviews basic geometry as applied to common shapes and forms. The student will become familiar with basic terms for construction drawings, components, and symbols. As well as the different types of drawings (civil, architectural, structural, mechanical, plumbing/piping, electrical, and fire protection). The student will be shown how to interpret and use drawing dimensions. Four oversized drawings are included.

Course HV002 **Customer Relations and Introduction to HVACR**

NCCER Level I Certification in HVACR Technology B: Introduction to Customer Relations and Communication Skills, Material Handling and Introduction to HVACR

54 Clock Hours 3.5 Credit Hours

This class identifies the roles of individuals and companies in the construction industry and introduces trainees to critical thinking and problem solving skills as well as the computer systems and their industry applications commonly found in this industry. Students will review effective relationship skills, effective self-presentation, and key workplace issues such as sexual harassment, stress, and substance abuse. This class provides trainees with techniques for communicating effectively with co-workers and supervisors and includes practical examples that emphasize the importance of verbal and written information and instructions on the job. Also discussed is effective telephone and e-mail communication skills. This class helps the student recognize hazards associated with materials handling and explains proper materials handling techniques and procedures. This class also introduces materials handling equipment, and identifies the appropriate equipment for common job-site tasks. The students will learn the history behind climate control and the evolution of the technology over the years. This class includes the basic principles of heating, ventilating, and air conditioning, as well as commercial and industrial refrigeration systems and their applications.

Course HV003 **Basic Electricity**

NCCER Level I Certification in HVACR Technology C: Basic Electricity, Piping Practices and Trade Math

66 Clock Hours 3.5 Credit Hours

The students will learn how to solve problems involving the measurement of lines, area, volume, weights, angles, pressure, vacuum, and temperature. This class also introduces scientific notation, powers, roots, and basic algebra and geometry. This class covers the selection, preparation, joining, and support of copper and plastic piping and fittings, and provides information on tools, materials, and safety precautions. The student will learn step-by-step procedures for soldering and brazing piping. This class covers iron and steel pipe and fittings, and provides step-by-step instructions for cutting, threading, and joining ferrous piping. The students will become familiar with power generation and distribution, electrical components, DC circuits, and electrical safety.

Course HV004 **Introduction to Heating and Cooling**

NCCER Level I Certification in HVACR Technology D: Introduction to Heating and Cooling and Air Distribution Systems

54 Clock Hours 3.0 Credit Hours

The students will learn the principles of heat transfer, refrigeration, and pressure-temperature relationships and the components and accessories used in air conditioning systems as well as heating fundamentals, types and designs of furnaces and their components, and basic procedures for installing and servicing furnaces. The students will become familiar with air distribution systems and their components, air flow measurement, ductwork installation principles, and the use of instruments for measuring temperature, humidity, pressure, and velocity.