



HVAC A/C and Gas Heat Technician Certification Online – T104 200 hours

A comprehensive HVACR training program for heating, air conditioning, and refrigeration service technicians. This program is designed for learners using an online, mentor facilitated, self-paced environment that are interested in an Entry-level position into the HVACR industry. All courses are NATE recognized (www.natex.org) the leading certification program for technicians in the heating, ventilation, air-conditioning, and refrigeration (HVAC/R) industry and is the only test supported by the entire industry.

HVAC/R Fundamentals

This course is designed to explore the common aspects of HVAC/R technology. Discussion will focus on such topics as heat transfer methods, basic terminology and definitions, and applied physics for HVAC/R systems. Six modules cover: Introduction to the industry, HVAC/R measurements, Heat energy, Pressure, Gas works and Air works.

HVAC/R Safety

Covers the basic safety considerations of the HVAC/R workplace. Presentations and coursework are in six modules that cover: Hazard communication (labels and MSDS), Personal protective equipment (PPE), Personal safety in confined space and ladders, Electrical lockout/tagout, Fire extinguishers and compressed gas safety, Back protection and HVAC/R hazardous materials

HVAC/R Electrical DC Theory Plus

Basic electrical theory such as Ohms Law, circuit schematic symbols, circuit characteristics, will be discussed as it specifically applies to DC & AC circuits in the HVAC/R industry. Six modules cover: Introduction to the industry, What is energy, Atomic theory, Basic circuits, Parallel circuits, Power.

HVAC/R Electrical AC Theory Plus

A continuation of the Electrical 111 course, concepts presented and discussed are oriented towards alternating current production and application, specifically to devices utilized in HVAC/R systems. Six modules cover: Magnetism, Alternating current, Loads, resistive and Inductive, Capacitors, Impedance and power distribution, Transformers.

HVAC/R Electrical Common Components

This course covers common control components found in HVAC/R systems. Presentations and examples are given for specific devices and their electrical sequence of operation in normal HVAC/R applications. Six modules cover: Control Methods, Temperature & Pressure, Residential Heat/Cool Thermostats @ Low Voltage, Really Good Relay Stuff, Contactors go / Starters go with protection, Power wiring, Odds and ends around a schematic.

HVAC/R Electrical Motors

This course is dedicated to common single- phase and small three-phase electric motors. Presentations focus on basic motor theory, common types of motors, starting components and protection devices. Six modules cover: Basic electric motor theory, Shaded pole & split-phase motors, CSIR & CSR motors, PSC & multiple speed motors, Dual voltage and variable-speed motors, Basic three-phase motors.



HVAC/R Systems Air Properties and Measurement

This course is the introduction to HVAC comfort systems. Topics covered include human comfort, psychrometrics, and an introduction to basic air distribution systems, airflow measurement methods and calculations. Six modules cover; Heat transfer concepts, Comfort (humans and machines), Conditions of air, Introduction to psychrometrics, Using the psychrometric chart, Air flow measurement.

HVAC/R Gas Heat

This course covers combustion basics for natural gas and propane fuels as found in residential and light commercial applications. Presentations cover the common types of gas heating equipment. Six modules include: Gas combustion basics, Common components & safety issues, Natural draft, Induced draft, Direct vent, Sealed combustion.

HVAC/R Refrigeration

This course will serve as an introduction to the mechanical compression refrigeration cycle and the necessary components. Students will be introduced to the common components, and terms and definitions of the cycle. HVAC/R Fundamentals is recommended prior to taking this course. Six modules include: Basic refrigeration cycle physics, Compression and compressors, Condensation and condensers, Expansion and metering devices, Evaporation and evaporators, The system makes a cycle.

Option (Choose One)

HVAC/R Gas Heat II

This course is a higher-level gas heating course. Content covered in this program rounds out the knowledge needed to be a qualified gas service technician working on residential / light commercial equipment. Topics covered are: Gas Venting, Gas Piping, Current technology electrical systems, Two Stage Burners, Modulating Burners, LP Gas Hot Water & Steam Boilers

HVAC/R Refrigeration II

This course is a continuation and elaboration of HVAC/R Refrigeration 1. Presentations will describe the application of common accessories found in a system, piping arrangements, sizing considerations and system operation. Six modules include; Refrigerants, Compressor accessories and applications, Low side accessories and applications, High side accessories and applications, Basic piping system sizing and applications, Basic capacity control methods.

HVAC/R Co-operative Work Experience

For those students who are not currently employed in the HVAC/R field, we recommend contacting local HVAC employers for either co-operative work experience or internships. Most employers are very excited to take on an individual who shows motivation in pursuit of an HVAC/R career! Trust us, we have heard it all! If for any reason you are unable to find an employer for your hands-on experience, please feel free to contact us and we will assist you.

Each course contains 6 modules. The modules cover specific HVAC/R concepts by incorporating a presentation that utilizes some or all of the following; text reading assignments, web site tours, applied exercises, quizzes, industry terminology definitions, video clips, animations, images, and printable handouts. Each module is followed by an exam, with a midterm and final for each course.