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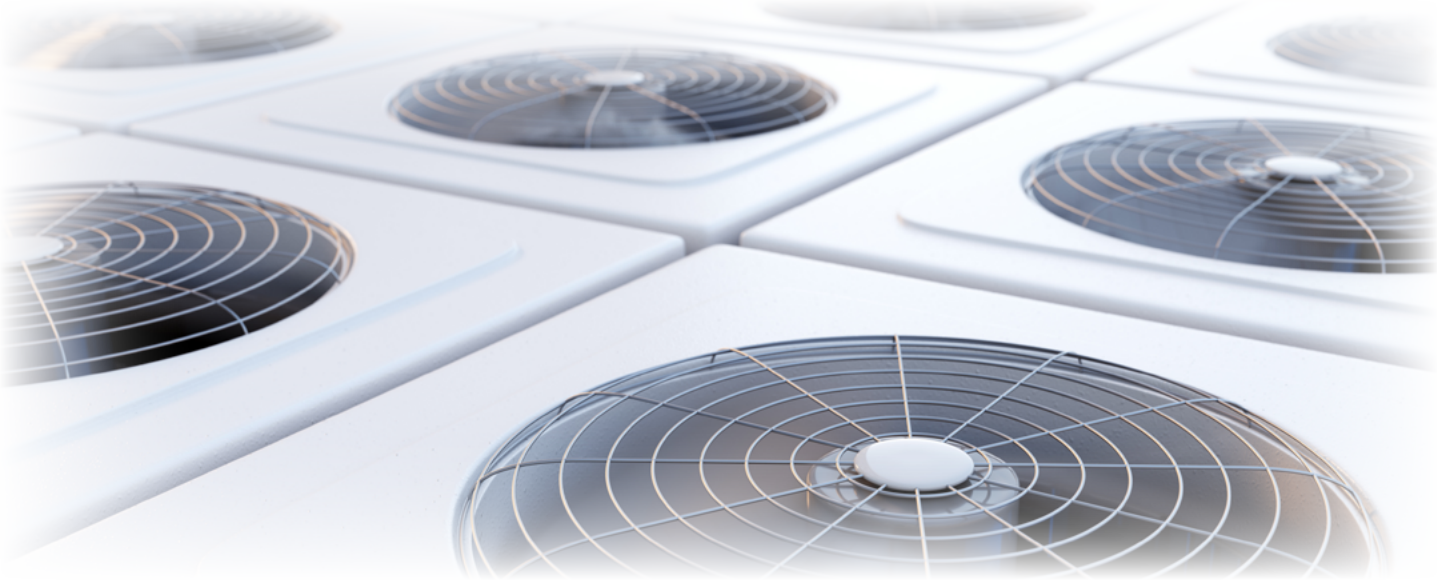

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TECHNICAL COURSES

TCA Technical Core Assessment

If you are a technician, but you're not sure where to start, or what to study first, start with this online assessment of your current knowledge. Don't waste time taking classes you don't need. The TCA will reveal your strengths and weaknesses in nine CORE areas of HVACR, and indicate your readiness for industry certification exams such as HVAC Excellence, or NATE.

If you are a manager or supervisor, the TCA is a great way to establish a competency based training plan for new hires and existing
technicians. It is a series of nine separate assessments focusing on HVACR Core knowledge areas. The questions for each
assessment are randomly selected from a pool of qualified questions for that knowledge area. The TCA has an unlimited enrollment duration. This is so that you may reference your scores and recommendations throughout

The knowledge areas covered are:

Safety Assessment (Core) - 1 Question
HVAC Efficiency Technician 2 (Core) - 12 Questions
Electrical 1 Assessment (Core) - 20 Questions
Electrical 2 Assessment (Core) - 20 Questions
Electrical 3 Assessment (Core)- 20 Questions
Electrical 4 Assessment (Core) - 20 Questions
HVAC Physics Assessment (Core) - 20 Questions
HVAC Air Properties Assessment (Core) - 20 Questions
Refrigeration Cycle Assessment (Core) – 20 Questions

Foundation

EPA 608 Refrigerant Usage Certification

(30 days)

This course was created to help prepare the student for the EPA Section 608 Certification exam, in alignment with the very latest federal standards and requirements. The top level is packed with downloadable study guides, a video, and an EPA 608 Exam Prep Manual. The first module starts the student with the Core terms. The next three modules cover everything you need to know for Type I, II, and III certifications with a Terms Definitions Exercise and they end with a practice exam. Once the student has successfully completed this course, he/she will be well prepared for a successful exam to become an EPA 608 Licensed Technician. The course is divided into the following sections:

- Resources
- Core
- Type I
- Type II
- Type III
- EPA Exam

010

010 Employability Skills (9 hours / 60 days)

Written by Patricia Leiser and Phil Rains

Learn how to provide customers with first class customer service by becoming a valued employee, handling your paperwork and recordkeeping correctly, and communicating with your customers and co-workers in professional ways that develop return customers.

Modules cover:

- Personal Work Habits
- Industry Paperwork and Recordkeeping
- Communications & Work Relationships

050 HVACR Applied Math (12 hours / 60 days)

A course designed to refresh and exercise common math concepts as applied to the HVACR workplace. This course provides demonstrations and exercises in the four basic math functions; addition, subtraction, multiplication and division. Each of the four functions is practiced using HVACR workplace applications. The course is offered without an instructor, but everything you need is included in the learning modules to refresh your working knowledge of basic math. Each of the four math functions are applied to:

- Whole numbers
- Fractions
- Decimals

Each module provides a tutorial that demonstrates how the specific process is performed and then followed with a selection of exercises to sharpen your skills. The correct answer is given after each of the exercise problems. The module is completed with a 10 randomly selected question exam. You will have 5 attempts at each exam to master math process assessed. Your highest score will be entered in your grade book.

Modules cover:

- Addition of Whole Numbers
- Subtraction of Whole Numbers
- Multiplication of Whole Nimbers
- Division of Whole Numbers
- Addition of Common Fractions
- Subtraction of Common Fractions
- Multiplication of Common Fractions
- Division of Common Fractions
- Addition of Decimal Fractions
- Subtraction of Decimal Fractions
- Multiplication of Decimal Fractions
- Division of Decimal Fractions

102 Safety (18 hours / 60 days)

This course covers the basic safety considerations of the HVAC workplace. Instruction aligns with/ACCA Quality Installation and ACCA/ ASHRAE Standard180. This course is recognized for 18 hours of continuing education (CEHs) applicable to North American Technician Excellence (NATE) recertification.

Expected End of Course Outcomes:

- Develop new work habits to increase your personal safety
- Identify electrical shock protection practices
- Learn to protect your back from unnecessary injury

Modules cover:

- Labels, Materials Safety Data Sheets, and Safety Training
- Personal Protective Equipment (PPE)
- Personal Safety in Confined Spaces and on Ladders
- Fire Extinguishers and Compressed Gasses
- Electrical Lockout / Tagout
- Back Safety, Scaffolds/Lifts, and Fall Protection

109 Basic Hand and Power Tools (6 hours / 60 days)

An introduction to the basic hand, power and specialty tools used daily by the working HVACR technician. The topics discussed include Installation, Service and Troubleshooting Tools. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 6 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- Installation Hand Tools - Sheet Metal & Piping
- Electronic & Power Tools

Mechanical

101 HVACR Fundamentals (18 hours / 60 days)

An introduction to the HVACR basic fundamentals and terminology, and the applied physics concepts that are utilized in HVACR systems. Subjects include measurements, heat, pressure, gas properties, and air properties. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- Measurements
- Heat Energy
- Pressure
- Gas Works
- Air Works
- Introduction to the Industry

103 HVACR Basic Sheet Metal (21 hours / 60 days)

This course will assist HVAC Technicians and others involved in the HVAC industry with a basic understanding of sheet metal. Sheet metal work is essential to HVAC work. An HVAC tech doing a furnace change out, for instance, will need to fit the new furnace to the plenum which may involve designing or building an adapter. The idea of taking a flat piece of metal and forming it into something useful, functional or decorative can be one of the most fascinating aspects of HVAC work. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 21 hours of continuing education (CEHs) which are applicable to NATE re- certification.

Modules cover:

- Types of Sheet Metal and Their Uses
- Assembling, Connecting, and Fastening Sheet Metal Components
- Sheet Metal Tools and Their Uses
- Sealing, Insulating and Lining Sheet Metal Ductwork
- Specifications, Symbols, and Codes
- Introduction to Sheet Metal Duct Layout and Fabrication
- Methods of Layout & Development

104 Copper Works (6 hours / 60 days)

Copper Works is different from all our other online courses because it was designed to provide specific guidance for students in a Copper Lab. It is rich with images and streaming videos that deliver the course content. There are two exams; one at the end of module 1, and the second at the end of module 3. If you are a technician who wants to improve your copper working skills without going to a classroom, this course is right for you. This course is recognized by NATE for 6 hours of continuing education (CEHs) applicable to re-certification.

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Modules cover:

- Copper Tubing/Pipe and Fittings
- Cutting, Flaring, Swaging & Bending Tubing
- Torch Safety and Operation
- Soft Solder
- Silphos Braze
- Silver Braze

106 106 HVACR Building Systems Review (3 hours / 30 days)

This is an entry-level course in a single module designed for those who need a basic understanding of residential building construction assemblies, terms and materials, as they pertain to HVACR installation and service work on a jobsite. The content of this course follows the recommended topics for basic study of HVACR. With this introductory course a student will have a better understanding of many of the basic building construction methods and materials. The content covered is keyed to the specified HVACR industry competency and curriculum guidelines published by several organizations concerned about education provided to HVACR technicians: NATE (North American Technician Excellence), ARI (Air-conditioning and Refrigeration Institute), ACCA (Air Conditioning Contractors of America) . This course is NATE recognized for 3 hours of continuing education (CEHs) applicable to re-certification and RSES (Refrigeration Service Engineers Society).

110 110 HVACR Blueprints (12 hours / 60 days)

This online course provides an introduction to Blueprints used in construction specific to the heating, ventilation, and air conditioning systems that are likely to be found on the jobsite. HVACR Technicians need to understand how to read blueprints in order to perform their jobs and avoid errors. Subjects covered throughout this course include blueprint terms, symbols, interpretation and application of drawings; how to locate and identify the different components of a blueprint, scales of drawings, different measuring instruments; the meaning of different lines, markings, abbreviations, symbols, and keynotes; using gridlines to locate an area, caring for blueprints, and finally, how to measure for accuracy. This course is NATE recognized for 12 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- Intro to Blueprints
- Components of the Blueprint & Scale
- Lines of Construction, Abbreviations, Symbols & Keynotes
- Using Gridlines to Identify Plan Locations & Dimensions

121 HVACR Systems Air Properties and Measurement (18 hours / 60 days)

Your introduction to HVAC comfort systems. In this course we discuss heat energy, the conditions of human comfort, the psychrometric chart and plotting various air conditions upon it. Included is the top-rated eBook on the topic entitled, “Psychrometrics Without Tears” to help you digest the important concepts of air and how the various properties relate to each other. We complete the course by introducing the terms, concepts, measurements, and calculations of moving air.

Modules cover:

- Heat Energy and Comfort
- Properties of Air
- Psychrometrics
- Total Heat In Air
- Measureing a Heavy Invisible Moving Volume
- Air Flow Measurement

Recommended Prerequisites: It is recommended that you have a good understanding of HVACR Fundamentals and have a working knowledge of those topics prior to enrollment into this intermediate course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

122 HVACR Systems: Load Calculations (18 hours / 60 days)

Residential load calculations is a method to determine the heating and cooling BTU/H loads of structures prior to installing HVACR systems to meet those loads. ***You will need the required text:*** Air Conditioning Contractors of America (ACCA) Manual J, 8th Abridged Edition (MJ8-AE). This manual provides thorough instructions for estimating heat loss and heat gain for residential structures and helps to simplify complicated procedures that are often used on a variety of home applications. 122 Systems provides instruction for completing load calculations by hand, which is necessary prior to attempting any computerized load program. We focus on following the concepts of MJ8-AE while further simplifying the methodology emphasized in the manual. Students will utilize a “simple” residential structure and follow the steps to calculate both heat loss and heat gain for its location and outdoor design temperatures. This course also covers residential equipment selection focused on the heating and cooling equipment Btu/h loads of a structure.

Modules cover:

- Fundamentals of Load Calculations
- Heat Loss of a Structure
- Heat Gain of a Structure
- Example Heat Loss & Heat Gain Calculation
- Fundamentals of Equipment Selection
- Regional Load Calculation Exercises

Recommended Prerequisites: You will want to have a strong working knowledge of HVACR fundamentals prior to enrollment into this advanced course. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

123 HVACR Air Distribution (18 hours / 60 days)

123 Air Distribution begins with an in-depth discussion of the fundamentals of residential air flow, then turns the focus to residential duct design utilizing the Air Conditioning Contractors of America (ACCA) Residential Duct Systems, Manual D (required textbook) and ACCA Manual T (optional textbook). System selection, system performance characteristics, duct materials, blower performance, air –side devices and duct sizing procedures are covered in detail.

Recommended Prerequisites: You will want to have a strong working knowledge of basic HVACR fundamentals prior to enrollment into this advanced course. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE recertification.

Modules cover:

- Fundamentals of Air Flow
- Air Distribution Systems
- Fundamentals of Air Conditioning Contractors of America (ACCA) Residential Duct Systems, Manual D
- Application of Air Conditioning Contractors of America (ACCA) Residential Duct Systems, Manual D Duct Sizing Procedures
- Application of Air Conditioning Contractors of America (ACCA) Air Distribution Basics for Residential and Small Commercial Buildings, Manual T
- Selection and Sizing of Supply Air Outlets and Return Air Inlets using the ACCA Manual T and Air Distribution Equipment Manufacturer Performance Data for an Example Residential Structure

138 Introduction to Mini Splits (15 hours / 60 days)

The 138 Introduction to Mini Splits is an intermediate course, totaling 15 instructional hours. Students will take one module at a time, in a systematic progression that moves through foundational knowledge, into the specific technologies focusing on Mini / Multi Split Systems. This program is NATE recognized for 15 hours of continuing education hours (CEHs) which are applicable to NATE re-certification.

"This class is designed to get you up to speed on one of the biggest trends in our industry.....the ductless mini split. My goal for this class is for you to understand the basic inner workings of a mini split and become familiar with the product line, it's uses, and what it's not well suited for. At the end of this class you should be able to find important manufacturer information, identify components that might differ from a regular split system, as well as learn what best practices are. If you have any questions, please feel free to reach out! Let's get started!" - Ryan Findley, Instructor.

Modules cover:

- Mini Splits - Foundation
- Refrigeration – 1 to 1 Systems
- Mini-Split Controls and Electronics
- Installation Practices
- Installation Accessories

141 HVACR Refrigeration I (18 hours / 60 days)

HVACR Refrigeration 141 provides a thorough examination of the refrigeration cycle as it is applied to both air conditioning and refrigeration purposes, and presents a practical and systematic method to diagnose problems in the refrigeration cycle. If you understand the parameters governing the operation of the refrigeration cycle, you will be able to diagnose any piece of equipment.

Modules cover:

- Basic Refrigeration Cycle Physics
- Condensation and Condensors
- Expansion and Metering Devices
- Evaporation and Evaporators
- Compression and Compressors
- Measure the Normal Cycle

Prerequisite: It is recommended that you have a good understanding of HVACR Fundamentals, or have a working knowledge of them, prior to enrollment into this intermediate course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

142

142 HVACR Refrigeration II (18 hours / 60 days)

This course is a continuation and elaboration of HVACR Refrigeration I. Presentations describe the application of common accessories found in a system, piping arrangements, sizing considerations and system operation. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols.

Prerequisites: You will want to have completed 141 HVACR Refrigeration I, or have a working knowledge of the content of that course prior to enrollment into this advanced course. Please refer to the 141 course description in the Catalog for specific details. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- Refrigerants
- Common Compressor Accessories
- Common High-Side Accessories
- Common Low-Side Accessories
- Piping System Sizing
- Common System Control Arrangements

143 HVACR Leak Detection, Evacuation and Charging Systems

(9 hours / 30 days)

Refrigerant leak detection, evacuation, and charging are critical to ensure the reliability of any refrigeration system. This advanced course leads you through the information and procedures you need to perform the necessary tasks in step-by-step detail. You will learn How to identify when and where there is a leak, Leak detection methods, Reasons for system evacuation, Operation of a Vacuum Pump, Operation of a Micron Gauge, Importance of the correct charge, and Methods used to check a charge. You'll acquire all the knowledge you need to do the job right. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180.

Modules cover:

- Refrigerant Leak Detection
- Evacuation
- Charging Systems

Prerequisites: You will want to have completed 141 HVACR Refrigeration I, and 142 HVACR Refrigeration II, or have a working knowledge of the content of those courses prior to enrollment into this advanced course. Please refer to the 141 & 142 course descriptions in the Catalog for specific details. This course is recognized for 9 hours of continuing education (CEHs) applicable to NATE re-certification.

186 Economizers ADEC / DCV (24 hours / 60 days)

HVAC Economizer systems are an often misunderstood, yet essential component of successful energy efficiency and air comfort/quality strategies in commercial building applications. The goal of this course is to provide the working field technician and HVAC student with an understanding of the importance of correctly installed and operating economizers, what they are, how they work, and how the service technician can maintain, troubleshoot, and ensure the correct operation of these systems. This course is applicable to Title 24 in the State of California, and adheres to the ACCA/ASHRAE Standard 180 Quality Maintenance protocols.

Modules cover:

- Introduction to Economizers
- Applied Economizers
- Air Properties and Psychrometrics
- Applied Psychrometrics
- Economizer DDC Operations - Honeywell
- Economizer Operations – Trane
- Belimo – ZIP Economizer
- Demand Control Ventilation (DCV)

Recommended Prerequisites: You will want to have a strong working knowledge of basic HVACR fundamentals prior to enrollment into this advanced course. This Economizers ADEC / DCV course is NATE recognized for 24 hours of continuing education (CEHs) applicable to NATE re-certification.

201 High Efficiency HVAC (12 hours / 60 days)

The intent of this course is to give maintenance staff a feel for the equipment present in their buildings. With this understanding, you will be better able to perform and handle service issues when required. The course begins with a basic introduction of the layout of the various components of an HVAC system utilized in large and small commercial facilities. Then the modules expand into the specifics of chilled water, refrigeration, and heat rejection systems. The course continues with a focus on central chiller, fan coils, and chilled beam systems. And the course finishes up with a focus on Demand Controlled Outside Air (DCOA), packaged and variable refrigerant flow systems.

Module topics cover:

- Introduction and Airside
- Chilled Water, Refrigeration &Heat Rejection
- Central Chiller, Fan Coil & Chilled Beam Systems
- DCOA, Packaged and Variable Refrigerant Flow Systems

Recommended Prerequisites: You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. This course is recognized for 12 hours of continuing education (CEHs) applicable to NATE re-certification.

205 HVACR High Efficiency Ventilation (9 hours / 30 days)

The intent of this course is to give maintenance staff a feel for the equipment present in their buildings. With this understanding, you will be better able to perform and handle service issues when required. This course focuses upon Ventilation Systems in Commercial Buildings. An overview of the science and background of indoor air quality is first, then the course modules expand into the specifics of the components utilized in the operation of modern commercial building ventilation systems.

Module topics cover:

- Indoor Air Quality Overview
- Ventilation Systems I
- Ventilation Systems II

Recommended Prerequisites: you will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 9 hours of continuing education (CEHs) applicable to NATE re-certification.

221 HVACR Indoor Air Quality Basics (18 hours / 60 days)

You already know it is your job to provide services related to the comfort of air temperatures inside your clients' buildings. However, temperature management is not the only thing you need to know. This course will help you better understand the various elements of air quality, introduce the science of air quality, and give you some tips on how to identify and address the potential dangers of poor indoor air quality. The course does not address issues of allergies or chemically sensitive clients outside the basics of indoor air quality. You will learn indoor air properties, air flow, ventilation, moisture, and air filtration systems. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

Module topics cover:

- IAQ Basics
- Properties of Air
- Air Flow Basics
- Ventilation
- Moisture Management
- Air Filtration

238 Advanced Mini Splits (12 hours / 60 days)

The 238 Advanced Mini Splits is an intermediate course, totaling 12 instructional hours. Students will take one module at a time, in a systematic progression that moves through foundational knowledge, into advanced, specific technologies, focusing on Mini / Multi Split Systems. Students are enrolled as online asynchronous. This access allows students to login at their convenience 24/7/365. This program is NATE recognized for 12 hours of continuing education hours (CEHs) which are applicable to NATE re-certification.

"This class is designed to get you up to speed on one of the biggest trends in our industry.....the ductless mini split. My goal for this class is for you to understand the basic inner workings of a mini split and become familiar with the product line, it's uses, and what it's not well suited for. At the end of this class you should be able to find important manufacturer information, identify components that might differ from a regular split system, as well as learn what best practices are. If you have any questio ns, please feel free to reach out! Let's get started!"

- Ryan Findley, Instructor.

Module topics cover:

- AMS – Indoor Units – Controls
- AMS -- Refrigeration System
- AMS – Advanced Troubleshooting
- AMS – Performance Engineering

239 HVACR Everything About Belts (3 hours / 30 days)

This is an entry-level course in a single module designed for those who need a basic understanding of drive belts and how they are utilized in residential and commercial HVACR systems. Types of drive belts, their selection, installation and maintenance are discussed in detail. The content of this course follows the recommended topics for basic study of HVACR. This course is NATE recognized for 3 hours of continuing education (CEHs) applicable to re-certification.

241 HVACR Intro to Cooling System Troubleshooting (18 hours / 60 days)

This course is provided to instruct the entry level HVAC technician in the common service procedures performed on conventional residential/light commercial cooling systems. These include electrical circuits, mechanical compression refrigeration cycle, necessary components in a cooling system, and more. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols.

Recommended Prerequisites: This course requires a good understanding of the refrigeration cycle. You will want to have completed 141 HVACR Refrigeration I, or have a working knowledge of the content of that course prior to enrollment into this advanced course. Please refer to the 141 course description in the Catalog for the specific details. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

Module topics cover:

- Cooling System Service Overview
- Cooling Service Tools/Equipment, Safety, and Quality
- Cooling System Components
- Cooling System Air Flow
- Cooling System Electrical Troubleshooting Basics
- Cooling System Mechanical Troubleshooting Basics

242 HVACR R-410A Refrigerant Technology (18 hours / 60 days)

This R-410A Qualification course [you will receive a uniform patch and a wallet card for 75% or higher scores] is designed to familiarize the technician with the differences between R-22 and R-410A. Background, regulations, impact on the industry, and application requirements are presented. The course provides the technician with practical knowledge for safe performance of service techniques on systems containing R-410A. When you have successfully completed this course, you will receive a certificate of completion that complies with many equipment manufacturers' policies requiring safety and service "certification" prior to purchasing equipment containing R-410A refrigerant. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols.

Modules cover:

- R - 410A Refrigerant Background
- R - 410A Refrigerant Regulatory Requirements
- R - 410A Refrigerant Basics
- R - 410A Refrigerant Safety, Handling & Service Equipment
- R - 410A System Components, Retrofitting, and Charging
- R - 410A System Operation & Troubleshooting

Recommended Prerequisites: You will want to have a strong working knowledge of basic HVACR fundamentals prior to enrollment into this advanced course. This course is recognized for 18 hours of continuing education (CEHs) which are applicable to NATE re-certification. This course has been approved by International Comfort Products, LLC.

243 HVACR Advanced Troubleshooting (21 hours / 60 days)

This comprehensive course will help technicians move through a procedure to follow safety guidelines, identify the source of problems in HVACR systems, use diagnostic tools, and to address the problem properly. Often technicians start their investigation with only the customer's call, "It died yesterday!" Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols.

Recommended Prerequisites You will want to have a strong working knowledge of basic HVACR fundamentals prior to enrollment into this advanced course. This course is recognized for 21 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- Electrical Troubleshooting
- roubleshooting Controls
- Troubleshooting Instrumentation
- Troubleshooting Air Side
- Troubleshooting Refrigeration
- Troubleshooting Combustion
- Troubleshooting Hydronics

244 RSES Hydrocarbon Refrigerants Training (3 Instructional hours / 30 days)

The US Clean Air Act and the Environmental Protection Agency is phasing out ozone depleting refrigerants like R-22. As a result, technicians will be handling other refrigerants like Hydrocarbons. This course introduces you to hydrocarbons as refrigerants, covers the associated regulations and standards, and gets you familiar with their properties and how to handle them safely. In addition there is a summary of the refrigerant cycle as it relates to hydrocarbon refrigerants, system components, and the proper safe servicing procedures of hydrocarbon refrigerant systems.

Course topics include:

- Introduction to the use of Hydrocarbons as Refrigerants
- HC Regulations and Standards
- Refrigerant Properties and Safety
- The Refrigerant Cycle
- System Components
- Servicing Procedures

Recommended Prerequisites: you will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Course content was provided by RSES. This course is NATE recognized for 3 hours of continuing education (CEHs) applicable to re-certification. This course allows 30 days enrollment to complete.

Electrical

111 HVACR Electrical DC Theory Plus (18 hours / 60 days)

An introduction to basic electrical theory such as the electron, Ohms Law, circuit schematic symbols, circuit characteristics and measurements as applied to DC & AC circuits in the HVACR industry. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This online course is NATE recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification. Students also receive access to the ESCO Electrical Theory and Application e-book, a downloadable file, as an additional learning resource.

Modules cover:

- Electrical Safety Fundamentals
- What Is Energy
- Atomic Theory
- Basic Circuits
- Parallel Circuits
- Power

112 HVACR Electrical AC Theory Plus (18 hours / 60 days)

A continuation of the Electrical 111 course, concepts presented focus on alternating current production and application to devices utilized in HVACR systems. Topics include magnetism, alternating current, two types of loads, capacitors, and values of load devices and their calculations, and transformers. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification. Also the ESCO Electrical Theory and Application e-book is included in the course as a downloadable file as an additional resource.

Modules cover:

- Magnetism
- Alternating Current
- Loads, Resistive and Inductive
- Capacitors
- Resistance
- Transformers

Recommended Prerequisites: It is recommended that you have a good understanding of HVACR Fundamentals and Completion of 111 HVACR Electrical DC Theory Plus, or equivalent on the job training, prior to enrollment into this intermediate course.

113 HVACR Electrical Common Components (18 hours / 60 days)

A logical continuation of 112 Electrical, this course covers common control components found in HVACR systems. Presentations and examples are given for specific devices and their electrical sequence of operation in normal HVACR applications. The final modules discuss wiring and schematic reading. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols.

Modules cover:

- Control Methods, Temperature & Pressure
- Residential Heat / Cool Thermostats at Low Voltage
- Really Good Relay Stuff
- Contractors / Starters with protection
- Power wiring
- Odds and Ends Around a Schematic

Recommended Prerequisites: you will want to have completed 111 HVACR Electrical DC Theory Plus, and 112 HVACR Electrical AC Theory Plus, or have a working knowledge of the content of those courses prior to enrollment into this advanced course. Please refer to each course description in the Catalog for the specific details. 113 Electrical is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification. Students also receive access to the ESCO Electrical Theory and Application e-book, a downloadable file, as an additional learning resource.

114 HVACR Electrical Motors (21 hours / 60 days)

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. You will also develop diagnostic skills for motor troubleshooting and replacement. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols.

Modules cover:

- Basic Electric Motor Theory
- Open and Hermetic Motors
- Capacitor Motors
- Three-phase Motors
- The Application of Electric Motors
- Diagnosing and Replacing Electric Motors
- ECM Motors

Recommended Prerequisites: you will want to have completed 111 HVACR Electrical DC Theory Plus, 112 HVACR Electrical AC Theory Plus, and 113 HVACR Electrical Common Components, or have a working knowledge of the content of those courses prior to enrollment into this advanced course. Please refer to each course description in the Catalog for the specific details. This course is recognized for 21 hours of continuing education (CEHs) applicable to NATE re-certification. Students receive access to the ESCO Electrical Theory and Application e-book, a downloadable file, as an additional learning resource.

216 Commercial Building Lighting Systems (12 hours / 60 days)

Facilities maintenance technicians and building managers are expected to maintain the lighting systems in their buildings. This course guides students through a better understanding of how light works and the importance of proper environmental lighting for both safety and comfort of the building occupants. Introduction to commercial lighting equipment and how to distinguish between a maintenance task and when to call a licensed electrician is covered. Students will better understand various lighting control strategies and opportunities to recommend more efficient lighting technologies. There is no textbook required. This course is recognized for 12 hours of continuing education (CEHs) applicable to NATE re-certification.

Module topics cover:

- Introduction to Commercial Lighting
- Commercial Lighting Equipment
- Commercial Lighting Maintenance and Upgrades – Part 1
- Commercial Lighting Maintenance and Upgrades – Part 2

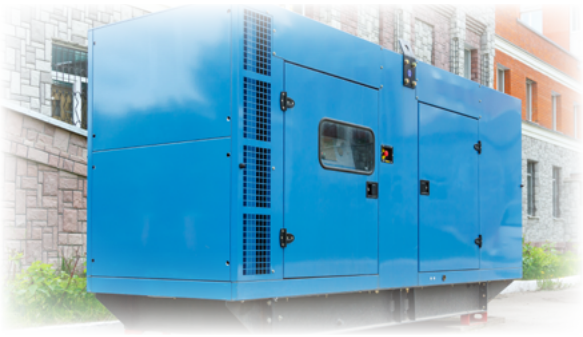
217 HVACR On Site Generation Systems (9 hours / 30 days)

The intent of this course is to give facilities maintenance staff a feel for the equipment present in their buildings. With this understanding, you will be better able to perform and handle service issues when required. This course focuses upon On Site Electrical Generation Systems utilized in Commercial Buildings. An overview of the fundamentals and background of Back-Up Generation Systems is first, then the course modules expand into the specifics of the components, operation and maintenance requirements of modern commercial building on site generation systems.

Module topics cover:

- Generation Fundamentals
- Generation Systems
- Maintenance of Back-up Generators

Recommended Prerequisites: You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 9 hours of continuing education (CEHs) applicable to NATE re-certification. A textbook is not required for this course.



131

131 HVACR Oil Heat I (18 hours / 60 days)

This course introduces the concept of combustion in basic terms. The focus is on the current direct-vent systems and the traditional high-pressure gun burner. It will prepare technicians to install, maintain, and repair residential and small commercial burner systems up to 400,000 BTUs/hour. We explore all the mechanical, electrical, and accessory devices commonly found in modern fuel oil heating systems. With this knowledge, you will build troubleshooting skills and identify applicable codes as they pertain to the installation and use of these systems. The NORA Oil Heat Manual e-book is provided as a downloadable file.

Modules cover:

- Characteristics of Fuel Oil & Principles of Combustion
- Types & Construction of Oil Burners
- Oil Burner Anatomy (part one)
- Oil Burner Anatom (part two)
- Fuel Oil Tanks & Piping
- Complete Heating Systems

Recommended Prerequisites: It is recommended that you have a good understanding of HVACR Fundamentals and have a working knowledge those topics prior to enrollment into this intermediate course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

133

133 HVACR Gas Heat I (18 hours / 60 days)

This course provides knowledge and skills required to become a highly skilled technician who will install, maintain, and repair residential and small commercial Gas Heat Systems. We explore all the mechanical, electrical, and accessory devices commonly found in the modern Gas Heating Systems. With this knowledge, you will build troubleshooting skills and identify applicable codes as they pertain to the installation and use of these systems. Also extremely important is the focus on safety for the technician, the building, and its occupants.

Modules cover:

- Fuel Gas Composition
- Pressure Regulators, Burners & Heat Exchangers
- Standing Pilot Systems
- Electronic Ignition
- High Efficiency Furnaces
- Troubleshooting Gas Burner Systems

Recommended Prerequisites: It is recommended that you have a good understanding of HVACR Fundamentals and have a working knowledge of those topics prior to enrollment into this intermediate course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

135

135 HVACR Heat Pumps (21 hours / 60 days)

An introduction to reverse-cycle heat pumps used in residential and light commercial applications. The course covers components and operational differences of a heat pump vs. a straight air conditioning system, troubleshooting, and solutions. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols.

Recommended Prerequisites: You will want to have a strong working knowledge of basic HVACR fundamentals prior to enrollment into this advanced course. This course is recognized for 21 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- What is a Heat Pump?
- Heat Pump Installation & Quality Criteria
- The Heat Pump Cooling Mode
- The Heat Pump Heating Mode
- The Heat Pump Defrost Mode
- Heat Pump Components
- Heat Pump Troubleshooting

137 HVACR Geothermal Heat Pump Systems (18 hours / 60 days)

You will gain an introduction to geothermal heat pumps as one of the most efficient heating and cooling technologies available today. The course focuses on geothermal (water source) heat pumps utilized for residential and light commercial applications.

Recommended Prerequisites: You will want to have a strong working knowledge of basic HVACR fundamentals and a good understanding of the refrigeration cycle prior to enrollment into this advanced course. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- Introduction to Geothermal Heat Pumps
- Geothermal Heat Pumps Mechanics
- Ground-Water (Open-Loop) Systems
- Closed-Loop Systems
- Equipment Selection Criteria & Economics
- Installation Setup, Startup & Troubleshooting

139 HVACR Electric Heat (15 hours / 60 days)

This online course provides an introduction and advanced training on the topic of Electric Heat and Electric Heating components relative to the HVAC systems that are likely to be found by a Technician in residential and light commercial applications. Subjects covered in this course include electric heat terms and identification of the basic components utilized, types of electric heat systems, as well as advanced theory and servicing of Electric Forced Air Furnaces.

Prerequisite: It is recommended that you have a good understanding of HVACR Fundamentals and Electrical, or have a strong working knowledge of those topics, prior to enrollment into this advanced course. This course is NATE recognized for 15 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- Introduction to HVAC Electric Heat Systems
- Troubleshooting & Servicing Electric Furnaces I
- Troubleshooting & Servicing Electric Furnaces II
- Blower Motors & Troubkeshooting Electrical
- Airflow Using Ohm's Law - Intro Quiz Review

161 HVACR Boilers I (18 hours / 60 days)

An introduction to the concepts and terminology of heating and power boilers, focusing on commercial and industrial boilers.

Recommended Prerequisites: You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180. This course is recognized for 18 hours of continuing education (CEHs) which are applicable to NATE re-certification.

Modules cover:

- Introduction to the Industry
- Classifying Boilers
- Combustion
- The Heat Exchanger
- Controlling Energy Sources
- Boiler Accidents / Hazards

171 HVACR Boilers Low Pressure License Prep (28 hours / 90 days)

This course introduces the concepts and terminology of heating and power boilers, focusing on commercial and industrial boilers. The course covers the required knowledge for proper and safe low pressure boiler system operations and includes an introduction to hydronic heating systems. Students are enrolled for a 90 day term.

Recommended Prerequisites: You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180. This course is recognized for 28 hours of continuing education (CEHs) which are applicable to NATE re-certification.

Modules cover:

- Introduction to the Industry
- Classifying Boilers
- Combustion
- The Heat Exchanger
- Controlling Energy Sources
- Boiler Accidents / Hazards
- Pumps
- Heat Transfer Units
- System Accessories

261 Commercial Boiler Fundamentals (6 hours / 30 days)

The intent of this course is to give maintenance staff a feel for the equipment present in their buildings. With this understanding, you will be better able to perform and handle maintenance and service issues when required. The course focuses upon Commercial Boiler Systems, with an introduction as to the various components and systems utilized in large and small commercial facilities.

Module topics cover:

- Large Boiler Overview
- Small Boilers

Recommended Prerequisites You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 6 hours of continuing education (CEHs) applicable to NATE re-certification.

262 HVACR Industrial Steam Boiler Fundamentals (6 hours / 30 days)

This course is aimed at providing maintenance staff an understanding of industrial boilers that generate steam and the related equipment, accessories, and controls for them. Some systems run on low pressure, others on high pressure; some use recirculated water, others use incoming water. Also, it is important to understand water treatment and chemical issues in steam systems.

Module topics cover:

- Small Boiler Overview
- Steam Boier Terms, Codes & Accessories
- Water Treatment for Steam Systems

Recommended Prerequisites You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 9 hours of continuing education (CEHs) applicable to NATE re-certification.

263 HVACR High Efficiency Commercial Boilers (6 hours / 30 days)

This course is aimed at providing maintenance staff an understanding of the specific issues and advantages of high efficiency condensing boilers utilized in commercial hydronic and steam heating systems. Options such as economizers for large boiler systems and high efficiency venting for all systems are introduced. Related equipment, accessories, and controls are also discussed.

Module topics cover:

- Small Condensing Boilers
- High Efficiency Options for Larger Boilers

Recommended Prerequisites You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 6 hours of continuing education (CEHs) applicable to NATE recertification.

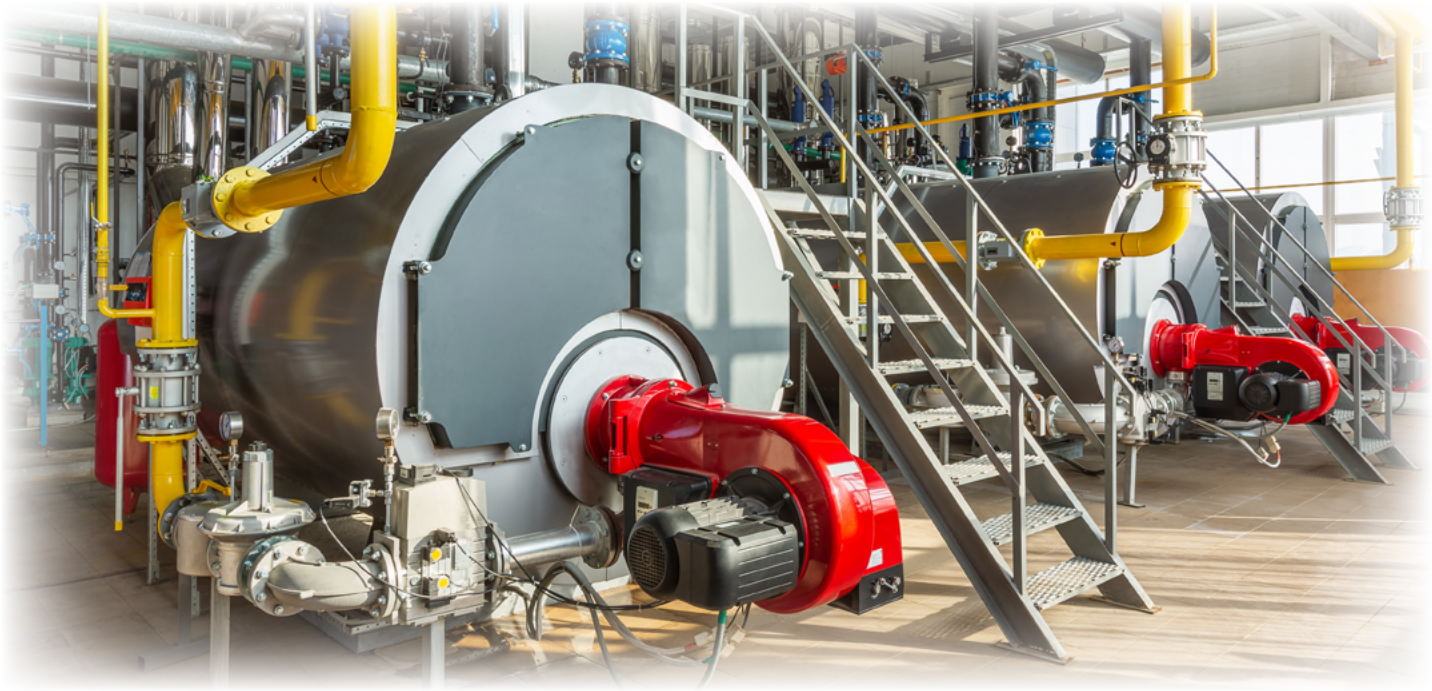
264 HVACR Industrial Steam Boiler Maintenance (9 hours / 30 days)

Boilers work best when properly maintained. This course presents the necessary and recommended daily, weekly, monthly, semi-annual, annual, and contractor maintenance tasks; and shows best practices for documenting and record-keeping that the maintenance was performed on schedule. When performed properly and on schedule, the tasks contribute to keeping an industrial steam boiler system operating efficiently.

Module topics cover:

- Daily Maintenance and Record Keeping
- Industrial Steam Boiler Maintenance – Weekly and Monthly
- Industrial Steam Boiler Maintenance – Semi-Annual, Annual, and Contractors

Recommended Prerequisites You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 9 hours of continuing education (CEHs) applicable to NATE re-certification.



265 HVACR Small Commercial Boiler Maintenance (3 hours / 30 days)

This course is contained in a single learning module. Small Commercial Boiler systems require scheduled maintenance and this course will offer students the basic steps for how to inspect boilers daily, monthly, and periodically. Guidance is provided for situations requiring extensive maintenance; when to notify third party service providers.

Recommended Prerequisites You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 3 hours of continuing education (CEHs) applicable to NATE re-certification.

266 HVACR Large Commercial Boiler Maintenance (6 hours / 30 days)

This course provides instruction on how to inspect, perform simple maintenance checks, and keep accurate records on daily, weekly, monthly, and annual schedule. These tasks contribute to the Large Commercial Boiler System's efficient operation. The course also helps students identify when to call in third party service providers.

Module topics cover:

- Record Keeping and Daily-Weekly Maintenance
- Monthly-Annual Record Keeping and Maintenance

Recommended Prerequisites You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 6 hours of continuing education (CEHs) applicable to NATE re-certification.

Chillers

191 HVACR Hydronics I (18 hours / 60 days)

This course is designed to introduce students to the concepts and terminology of hydronic heating. The main focus will be on residential / small commercial installations. 191 begins a series of courses that address hot water heating systems.

Recommended Prerequisites: You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE re-certification.

Modules cover:

- What is Hydronic Heating?
- Materials and Tools
- Boilers
- Pumps
- Heat Transfer Units
- System Accessories

202 202 High Efficiency HVAC System Maintenance – Central Chillers

(6 hours / 30 days)

The intent of this course is to give maintenance staff a feel for the equipment present in their buildings. With this understanding, you will be better able to perform and handle service issues when required. The course focuses upon Commercial Central Chiller Systems, with a basic introduction as to the layout of the various components utilized in large and small commercial facilities. Then the modules expand into the specifics of chilled water systems and the required maintenance and record keeping to insure efficient operation of the Chiller Systems.

Module topics cover:

- Central Chiller Maintenance – Daily and Weekly
- Central Chiller Maintenance – Monthly and Annual

Recommended Prerequisites: You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 6 hours of continuing education (CEHs) applicable to NATE re-certification.

203 203 High Efficiency HVAC System Maintenance – Cooling Towers

(6 hours / 30 days)

The intent of this course is to give maintenance staff a feel for the equipment present in their buildings. With this understanding, you will be better able to perform and handle service issues when required. The course focuses upon Commercial Cooling Tower Systems, with a basic introduction as to the layout of the various components utilized in large and small commercial facilities. Then the modules expand into the specifics of cooling towers and the required maintenance to insure efficient operation of the cooling tower systems.

Module topics cover:

- Cooling Tower Overview – Daily and Monthly Maintenance
- Cooling Tower Overview – Annual and Seasonal Maintenance

Recommended Prerequisites: You will need a strong working knowledge of HVACR Fundamentals prior to enrollment into this course. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180 Quality Maintenance protocols. This course is recognized for 6 hours of continuing education (CEHs) applicable to NATE re-certification.

204 204 Air Handler Maintenance

This course intends to give maintenance staff a feel for the equipment present in their buildings. With this understanding, you will be better able to perform and handle service issues when required. The course focuses upon Commercial Air Handlers and Roof Top Units, with a basic introduction as to the layout of the various components utilized in large and small commercial facilities. Then the modules expand into the specifics of each type of system and the required maintenance to ensure efficient operation of Air Handlers and RTU. Instruction aligns with ACCA Quality Installation and ACCA/ ASHRAE Standard 180. This course is recognized for 6 hours of continuing education (CEHs) applicable to NATE recertification.

Prerequisites: A strong working knowledge of HVAC fundamentals before enrollment in this course.

Module cover:

- Air Handler Maintenance
- Maintenance of Roof Top Units

Expected Outcomes:

- Identify types air handlers used in chiller and remote refrigeration (split) systems
- Identify the components of air handler systems
- Identify troubleshooting steps for air handlers

BUSINESS MANAGEMENT & EXAM PREP COURSES

Business Management

306 306 Operations Management (18 hours / 60 days)

As a contractor or operations manager, there are many challenging elements to overseeing your HVACR work flow. It's up to you to establish and follow-through on business practices that make your company profitable. This course will help by addressing the best practices in the primary areas of your company's operations that impact your profit margin. You will learn basic business practices and procedures to help manage your work flow, maximize resources and minimize delays and loss of time. This course is recognized for 18 hours of continuing education (CEHs) applicable to NATE.

Module topics cover:

- Personnel Management and Communication Skills
- Design Criteria
- Installation
- Materials Management
- Resource Scheduling - Cost Management Awareness
- Industry Paperwork and Recordkeeping

310 310 Product & Service Pricing for Profit (15 hours / 60 days)

This is the first in a series of Online Courses for Contracting Businesses, developed in collaboration with nationally acclaimed Grandy and Associates. This 15 hour course covers everything you need to calculate a realistic hourly rate for your installation and service jobs; budgeting and cash flow; equipment replacement costs; field labor costs; material sales; customer response cards; discussion of flat rate pricing; overhead; company matching taxes; fixed and variable overhead; net profit; overhead absorption; break-even rate; markup vs. profit; calculation of hourly rate; overhead cost per hour and an evaluation of the "what if" process. This course is specifically designed to help you consider all the costs of running a profitable business and setting your pricing at levels that keep your business going and growing.

Module topics cover:

- Budgeting and Cash Flow
- Equipment and Replacement Costs
- Field Labor Costs
- Material Sales – Overhead Costs
- Net Profit

311 311 Fifteen Things All Successful Companies Have in Common (15 hours / 60 days)

This is the second in a series of Online Courses for Contracting Businesses, developed in collaboration with nationally acclaimed Grandy and Associates. This 15 hour course describes in detail what all successful companies have learned; "what it takes to survive and prosper". The five modules cover the 15 important topics that every business must know to make it in the Contracting Industry. Each topic provides a fresh insight into how to run a very profitable business in today's marketplace. We saved the best for last, which is the section on tax tips --***this section alone will provide enough tax savings to pay for this program.*** At the end of each section there is a list of additional resources to expand your knowledge of that subject.

Module topics cover:

- Realistic Labor Rates; Budgeting; Business Plan
- Marketing Plan; Marketing Tools; Collections Policy
- Networking, Planning for Growth; Maintenance Agreement Program
- Company Newsletter, Flat Rate Pricing; Customer Response Cards
- Customer Service Training, Bank Line of Credit, Tax Minimization Plan

Exam Prep

Core Service Certification Review

This review prepares technicians for the HVAC Excellence or NATE Core Service Certification exam. The review covers in detail the same main topics as the NATE Core Service:

- HVAC Fundamentals
- HVAC Electrical Knowledge
- HVAC Air Side Knowledge

Air Conditioning Service Certification Review

This review prepares technicians for the HVAC Excellence or NATE Air Conditioning Certification exam at the Service level. The review is done in four comprehensive sections covering:

- HVAC Electrical Knowledge
- Air Side Knowledge
- Refrigeration Cycle Knowledge
- Cooling Service Knowledge

Air to Air Heat Pump Service Certification Review

This review prepares technicians for the HVAC Excellence or NATE Air to Air Heat Pump Service Certification exam at either the Installation or Service level. The review is done in four comprehensive sections covering:

- HVAC Electrical Knowledge
- Refrigeration Cycle Knowledge
- Air Side Knowledge
- Heat Pump Specific Knowledge

Gas Heating (Air) Service Certification Review

This review prepares technicians for the HVAC Excellence or NATE Gas Heating (Air) Service Certification exam at either the Installation or Service level. The review is done in three comprehensive sections covering:

- HVAC Electrical Knowledge
- Air Side Knowledge
- Gas Heat Specific Knowledge

Oil Heating (Air) Service Certification Review

This review prepares technicians for the HVAC Excellence or NATE Oil Heating (Air) Service Certification exam at either the Installation or Service level. The review is done in three comprehensive sections covering:

- HVAC Electrical Knowledge
- Air Side Knowledge
- Oil Heat Specific Knowledge

Spanish Language Courses

101 HVACR Principios Básicos (18 horas/60 días)

Este curso en línea ofrece una introducción a los fundamentos básicos y la terminología de HVACR. El contenido del curso se dedica a aplicar conceptos físicos que se utilizan en sistemas de HVACR. Se tratan los temas de las mediciones, el calor, la presión, y las propiedades del gas y del aire. La instrucción se alinea con las normas de ACCA para la instalación de calidad y el mantenimiento, e incluye tutoriales de RSES. Este curso es reconocido por 18 horas de educación continua (CEHs) aplicables a la re-certificación de NATE.

Módulos incluyen:

- Mediciones
- Energía Térmica
- Presión
- Propiedades de Gas
- Propiedades de aire
- Introducción a la industria HVACR

111 HVACR Electricidad - Teoría y más de la corriente (18 horas / 60 dias)

Este curso en línea es una introducción a la teoría eléctrica, como el electrón, la ley de Ohm, los símbolos del esquema del circuito, los características del circuito y las medidas que se aplican a los circuitos CC Y CA en la industria HVACR. La instrucción se alinea con las normas de ACCA para la instalación de calidad y el mantenimiento, e incluye tutoriales de RSES. Este curso en línea es reconocido por 18 horas de educación continua (CEHs) aplicables a la re-certificación de NATE.

Módulos incluyen:

- Fundamentos de la seguridad eléctrica
- ¿Qué es la energía?
- Teoría atómica
- Circuitos básicos
- Circuitos en paralelo
- Potencia

112 HVACR Electricidad – Teoría y más de corriente alterna

(18 horas / 60 dias)

Una continuación en línea del curso 111 Electricidad, los conceptos que se presentan y analizan son orientados a la producción de la corriente alterna y su aplicación a los dispositivos utilizados en sistemas de HVACR. Cubriremos el magnetismo, la corriente alterna, dos tipos de cargas, los condensadores, y los valores de los dispositivos de carga y sus cálculos, además de los transformadores. La instrucción se alinea con las normas de ACCA para la instalación de calidad y el mantenimiento, e incluye tutoriales de RSES.

Módulos incluyen:

- Magnetismo
- Corriente alterna
- Cargas resistivas e inductivas
- Condensadores
- Resistencia
- Transformadores

Curso Previo Recomendado: Se recomienda que tenga un buen conocimiento de los fundamentos de la teoría de corriente continua como lo tratado en el curso 111, o entrenamiento en el trabajo antes de hacer este curso. Este curso es reconocido por 18 horas de educación continua (CEHs) aplicables a la re-certificación de NATE.

121 HVACR Sistemas - propiedades y medición del aire (18 horas / 60 dias)

Este curso en línea es la introducción de sistemas de confort de HVAC. En este curso trataremos la energía térmica, las condiciones de confort humano, el gráfico de la psicrometría y el trazado de diversas condiciones de aire. Vamos a completar el curso con la introducción de los términos, conceptos, mediciones y cálculos del aire en movimiento. La instrucción se alinea con las normas de ACCA para la instalación de calidad y el mantenimiento.

Curso Previo Recomendado: Se recomienda que tenga un buen conocimiento de los fundamentos básicos de HVACR, o entrenamiento en el trabajo antes de hacer este curso. Este curso es reconocido por 18 horas de educación continua (CEHs) aplicables a la re-certificación de NATE.

Módulos incluyen:

- Energía térmica y confort
- Propiedades del Aire
- Psicrometría
- Calor total del aire
- Medir un pesado volumen invisible en movimiento
- Medición del caudal de aire

141 HVACR Refrigeración I (18 horas / 60 dias)

141 HVACR Refrigeración se ha diseñado para proporcionar un análisis exhaustivo del circuito de refrigerante, ya que se aplica a ambos aire acondicionado y refrigeración, y para proporcionar un método práctico y sistemático para el diagnóstico de problemas en el circuito de refrigerante. Si entiende los parámetros que rigen el funcionamiento del circuito de fluido refrigerante, será capaz de diagnosticar cualquier tipo de equipo. La instrucción se alinea con las normas de ACCA para la instalación de calidad y el mantenimiento.

Módulos incluyen:

- Física básica del ciclo de refrigeración
- Condensación y condensadores
- Dispositivos de expansión y medición
- Evaporación y evaporadores
- Compresión y compresores
- Medir el ciclo normal

Curso Previo Recomendado: Se recomienda que tenga un buen conocimiento de los fundamentos básicos de HVACR, o entrenamiento en el trabajo antes de hacer este curso. Este curso es reconocido por 18 horas de educación continua (CEHs) aplicables a la re-certificación de NATE

SUBCRIPTION CATALOG

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