NEXTECH ACADEMY®

HVAC CURRICULUM GUIDE

Shaping the future of our industry through flexible online training

Knowledge & Pacing

Our curriculum is intentional and prepares industry professionals. Most apprenticeship programs work on a 4-5-year model. NexTech Academy is designed to take a fraction of that time. We estimate that completion of the program will take 12-18 months.

NexTech Academy Scope and Sequence	
Months 1-4	By the end of Level 1, the student will be an educated helper, knowledgeable in tools, safety and materials.
Months 5-9	By the end of Level 2, the student will be an advanced helper to lead technicians. Depending on ability and comprehension, they may run basic maintenance calls.
Months 10-14	By the end of Level 3, the student will have experienced a variety of service calls expanding their knowledge base.
Months 14-18	By the end of Level 4, the student will have the knowledge, confidence and experience to troubleshoot and repair more advanced systems and, with their Nexstar training, they will be an outstanding ambassador for your company.

The Commitment

Each level is broken down into courses and each course consists of learning sessions, Session times vary, and hands-on skill assessments and reflection questions balance the time spent in front of the computer with in-person practice.

As the program progresses into the more technical / skill-based sections, Training Mentors and Training Leaders must closely monitor the student's comprehension of the skills being introduced. An experienced technician will have the ability to see if the student understands or does not understand the skill. Progression of the student from supervised to unsupervised skill practice is at the sole discretion of the Training Mentor and/or Training Leader.

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Course Order and Descriptions

Level 1: HVAC Fundamentals	
The History of HVAC	Have you ever wondered how HVAC worked 100 years ago? How about 500? This lesson covers the principles of heating, ventilation, air conditioning and refrigeration.
The Modern Day HVAC Industry	Understand the types of equipment you will be working on, along with the social skills you will need to build upon for your future in the industry.
Driving Safety	This is review on safe and defensive driving skills. You still need to have a valid license to operate a company's vehicle.
Electrical Safety	Electrical safety knowledge can be the difference between life and death for you, your coworkers or the homeowners you serve.
Personal Safety	You'll learn the basics of personal protective equipment (PPE).
Safety Awareness	You'll learn how to train your brain and your eyes to identify unsafe conditions. This course also covers regulations and safety standards.
Workspace Safety	You will spend time focusing on workplace procedures that will keep you safe from fire, falls, chemicals and injuring your hands and feet.
Mathematics Used In The Field	Being able to perform accurate measurements and calculations will save you time and effort and will help you complete tasks correctly and efficiently.
Electrical Conductors	This content will help you understand the different types of wire and what they do when you are in homes.
Conductor Terminations	Termination points are the weakest link in any electrical circuit. Making quality terminations will ensure this link doesn't fail prematurely.
Electricity Basics	As a trades person, you'll need to have a basic understanding of electricity: both to perform job-related tasks and to stay safe.
Types of Electrical Circuits	Get a high-level overview of electrical circuits, how they work and what happens when there is a short circuit.
Understanding Electrical Measurements	Discover what multimeters are, how to test AC and DC systems, amp draw on a circuit and how to test continuity in a system or component.
Volts, Amps, Watts and Ohms	Get to know the common concepts of electricity.
Common Hand Tools	We'll introduce cutting and shaping tools, measurement and layout tools, tightening and loosening tools.
Common Measurement Tools	Almost everyone on earth has used a measuring tape or ruler at one point or another. Although they are common, they have many features that make them invaluable to a trades person.
Common Power Tools	You will become familiar with common power tools like drills, saws and others you will need to do your job.
Drawings and Blueprint Reading	You will be introduced to construction drawings and blueprints and will learn what you want to look at in terms of your job's function.
How To Read A Circuit Diagram	Understanding this will help you when installing equipment in a home.
Introduction To Residential Equipment	Introduces different types of furnaces, air handlers, heat pumps, boilers, air conditioners, and ductless systems you will run into.

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Switches, Breakers and Disconnects	In this lesson, you will be introduced to the most common switches, breakers, and disconnects used in the HVAC Industry.
Transformers and Their Role In HVAC Systems	Learn about the sequence of operation for a standard oil-fired furnace and discover how to diagnose one in the field.
HVAC Control Devices	You will understand what controls all the different components of the system, how to identify them, and know what they do.
Thermostat and Temperature Controls	Familiarize yourself with the different types of thermostats on the market and the best practices for installing and setting up a new thermostat.
Motors and Capacitors	You will learn about PSC and ECM blower motors and essential testing procedures. You will also learn about capacitors, what they are, and how to test and replace these as well.
Basic Duct Design	You will learn about the benefits of the different types of duct systems and how they are incorporated. You will learn about the basics of return air sizing on a system in the field.
Fans and Duct Materials	Learn about various blower styles and configurations, different fan designs and applications, common duct materials and fittings and how to properly clean a blower assembly,
Your Personal Health and Well Being	Examine your current behaviors that impact your health, as well as behaviors you might want to consider to improve your well-being.
Cooling Systems Overview	You will learn about the main system components that make up the cooling and refrigeration system.
Refrigeration Tools and Measurements	You will learn how to use temperature probes, manifold gauges, and psychrometer.
Checking the Refrigerant Charge	Learn how to get specific readings so you can adequately identify if a system has a correct refrigerant charge.
Diagnosing the Refrigerant Charge	By understanding the check and charge process and how to check superheat and sub-cooling, you will start to understand what makes up an adequately charged system.
Your Daily Habits	There are certain daily habits and mindsets that will greatly help you grow as a residential service technician.
HVAC Level 1 Test	Successfully completing this test will grant you access into the next level.
Level 2: Basic Skills	
Introduction to Heat, Combustion & Furnace Types	You will learn about the fundamentals of heat, safety in cold weather, complete and incomplete combustion, the types of gas furnaces you will encounter, and how to test for carbon monoxide in your customer's home.
Introduction to Furnace Safety Controls	You will learn about roll-out switches, limit switches, pressure switches, and flame sensing devices.
Ignition Systems	This lesson covers spark ignitors, hot surface ignitors, flame sensing devices and how to test and replace them.
Induced Draft Motor Assembly	Learn what induced draft motors do, why they are essential, and how to properly inspect them for proper operation.
Gas Piping, Gas Valves and Burners	You will learn about the proper methods of joining gas piping and checking for gas leaks. You will also learn about gas regulators.

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Introduction to Heat Exchangers	Gain understanding on how heat exchangers work, how they are constructed and what makes them deteriorate.
Venting Heating Systems	We will cover the different types of venting systems you will run across and the materials used for these venting systems.
Oil Heating	Learn about the main system components, the sequence of operation, and you will learn the differences between these compared to gas-fired heating equipment.
Combustion Air	Discover best practices on how to appropriately size combustion air for a mechanical room, and for a condensing furnace or boiler system.
Your Attitude	You are in control of your attitude and the choices you make. Awareness of your choices will help you have more control of your circumstances.
Maintenance Accessories	Learn about some of the different accessories available to the homeowner that you can provide for them during an annual maintenance visit,
Heating System Maintenance	Learn the standard sequence of operation of most modern-day gas furnaces, and how it eventually will apply to your troubleshooting skills.
Refrigeration System Maintenance	You will learn the importance of maintenance on air conditioning systems, the benefits of clean coils, and airflow.
Working With People	Knowing and understanding what makes people tick will increase your ability to relate to customers and provide a better service experience.
Communication	Focus on how important non-verbal communication is on the job. You will also practice how to be a clear and effective communicator.
Indoor Air Quality	Learning about indoor air quality helps your customer's health and overall safety.
Sheet Metal Duct Systems	Learn how to join sheet metal ductwork, properly suspend and support sheet metal, and methods of proper ways to insulate sheet metal ductwork
Flexible Duct and Fiberglass Duct Systems	Learn how to correctly fabricate, install, and repair flexible and fiberglass duct systems
Basic Zoning Systems	We will discuss the major components of a zoning system, what they do, and how to perform basic maintenance on zoning systems.
Evaporative Coolers	You will learn about the different types of evaporative coolers and the various methods of installation.
Goal Setting	Big goals aren't impossible, you just need to approach them the right way. This course focuses on how to set measurable goals.
The Big Picture	You will be introduced to the four key roles of a technician and you will get an overview of what it means to work for an ethical company.
HVAC Level 2 Test	Successfully completing this test will grant you access into the next level.
Level 3: Intermediate Skills	
An Introduction To The Nexstar Service System	You will be introduced to the six steps of the Service System and you will complete reflection questions that will enhance your learning and better prepare you to work in the field with homeowners.
Service System Preparation	You will focus on the behavior needed to minimize callbacks and to provide exceptional service.

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Basic Copper Piping Practices	You will be learning the basics of working with copper, including how to identify the different types of copper, how to properly cut, bend, and how to join copper fittings together.
Brazing and Soldering	Learn the industry best practices of soft soldering and brazing.
Recovery, Pressure, Testing and Evacuation	You will learn how to successfully recover, pressure test, and evacuate a system in the field.
Focus On The Greet Step	The lesson dives deep on creating a great first impression.
Air Conditioning System Installation Best Practices	You will learn how to install a lineset properly and how to support it properly, and we will also show you the best practices of installing the outdoor condensing unit and the indoor evaporator coil.
Focus On The Explore Step	You will gain insight into the importance of keeping your eyes and ears open to what the customer truly wants and needs. Asking questions is key.
Design Processes and Evaluations	By understanding what comfort advisors in your company go through, you will be able to gain a better understanding of what is involved in the design process.
Duct Sizing and Duct Modifications	Learn more advanced concepts of duct design, friction loss, and how to use a duct calculator (also known as a duct slide rule or ductulator).
Condenser Evaporator Coil Replacement and Repair	We will guide you on a step by step process of how this is done, along with showing you how to repair a damaged coil from a screw puncture.
Focus On The Present Step	Explaining your solution and options in the customer's language will inspire their confidence in you.
Vent Piping Design and Troubleshooting	Learn how to size a common venting system in a residential home.
Focus On The Execute Step	You will focus on all of the things you can do to shine as a craftsman and demonstrate your respect for the customer and their home.
Zone System Design and Installation	We will discuss dampers, bypass dampers, zone control panels, and troubleshooting of these devices along with proper start-up and installation procedures for a zoning system.
Alternative Heating and Cooling Systems	Learn about alternative heating sources, solar systems, geothermal systems, water source heat pumps, wood burning heating equipment, along with Radiant Heating and Cooling Systems.
Focus On The Wrap Up Step	You will focus on how to making sure the customer is satisfied with the work done, following up after the call and critiquing your performance.
What's It Like To Work In HVAC Installation?	Knowing what they do differently than you will give you greater understanding to how your whole company operates.
HVAC Level 3 Test	Successfully completing this test will grant you access into the next level.
Level 4: Advanced Skills and Customer Interactions	
Relays, Sequencers and Solenoids	Learn how to properly troubleshoot the different types of relays, sequencers and solenoid valves on operating equipment in the field
Service Partner Plans and System Checks	You will learn how to introduce and explain service partner plans and system checks to homeowners.

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Troubleshooting Control Boards	Learn the most common methods of troubleshooting control boards.
Dealing With Pushbacks	Learn about being proactive or reactive in responding to objections.
Thermostat and Low Voltage Short Troubleshooting	Learn how to accurately troubleshoot a thermostat and be able to locate a short in a thermostat wire, and we will show you different methods on how to run a new thermostat wire.
Challenging Customer Situations	This course focuses on interesting and challenging situations you may come across in the field.
Troubleshooting Blower Motors	You will learn the basics of troubleshooting the different types of blower motors and how to properly replace them.
Troubleshooting Heating Safety Controls	Review how safety controls operate, and then we will show you how to diagnose these components and replace them in the field.
Induced Draft Motor Troubleshooting and Replacement	You will learn about the induced draft motor, how it works, why it is necessary, and how to properly troubleshoot.
Troubleshooting Igniters and Flame Rectification	You will learn about the different types of hot surface igniters, how they should operate, and how to troubleshoot.
Troubleshooting Gas Valves	We will cover troubleshooting gas valves, smart valves and gas piping issues. You will also learn how to replace a gas valve and installing an LP Conversion Kit.
Heating Exchanger Inspection and Replacement	Learn the best practices on how to troubleshoot a heat exchanger, along with a step-by-step process of how to correctly replace a primary and secondary heat exchanger in a condensing furnace.
Maximizing Efficiency: Help On The Job	You will spend time reviewing time cards, your summary of finding sheet and your personal resources, such as the call center and your dispatcher.
Troubleshooting Electric Heating Elements	Understanding how they work, the sequence of operations, and how to troubleshoot and replace will give you a skill set that will set you apart from other technicians
Troubleshooting Zoning Systems	You will learn how to properly diagnose the system so you know which component has failed and why
Build Your Future	You will review some key customer service concepts taught in NexTech Academy and provide you with ideas on how you can keep your learning going and build mentoring relationships with your colleagues.
Troubleshooting Oil Heating Systems	Learn about the most common problems associated with oil furnaces and how to troubleshoot and fix them.
Troubleshooting Condenser Fan Motors	You will learn the different troubleshooting methods for both PSC and ECM type condenser fan motors. We will then guide you on how to properly replace these motors on equipment
Commissioning Techniques	One of the biggest mis-diagnosed problems involving air conditioning systems is the refrigerant charge. You will be able to identify whether it is an airflow issue, a restriction, or a charging issue.

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Leak Detection Methods	You will be learning the different methods of finding leaks in residential air conditioning systems, common leak locations, how to spot these leaks, and how to properly replace a shrader core and cap on an air conditioner.
Diagnosing Compressors	You will learn the industry's best practices of diagnosing the most common compressor problems. You will also gain a better understanding of what the interpretations mean with your meter.
Replacing Compressors	You will learn the process of replacing a compressor.
Advanced Metering Device Diagnosis and Repair	Understanding the difference between airflow problems and faulty metering devices in the field are paramount to being able to diagnose a refrigerant circuit correctly and efficiently.
HVAC Level 4 Test	Successfully completing this test will grant you graduation from NexTech Academy!

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> NexTech Academy combines a mixture of media formats to keep the technicians engaged and challenged. As a training assistant, I have found that the NexTech Academy program allows me to track the progress of my participants at a glance and offers me insight as to how to best serve them to learn their trade. I am excited to see how the curriculum advances the skills of my technicians and improves the quality of our business.
>
> Scott Thelen, Service Manager
> Pippin Brothers Inc.

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Course Order and Descriptions

Level 1: HVAC Fundamentals	
The History of HVAC	Have you ever wondered how HVAC worked 100 years ago? How about 500? This lesson covers the principles of heating, ventilation, air conditioning and refrigeration.
The Modern Day HVAC Industry	Understand the types of equipment you will be working on, along with the social skills you will need to build upon for your future.
Driving Safety	This is review on safe and defensive driving skills. You still need to have a valid license to operate a company's vehicle.
Electrical Safety	Electrical safety knowledge can be the difference between life and death for you, your coworkers or the homeowners you serve.
Personal Safety	You'll learn the basics of personal protective equipment (PPE).
Safety Awareness	You'll learn how to train your brain and your eyes to identify unsafe conditions. This course also covers regulations and safety standards.
Workspace Safety	You will spend time focusing on workplace procedures that will keep you safe from fire, falls, chemicals and injuring your hands and feet.
Mathematics Used In The Field	Being able to perform accurate measurements and calculations will save you time and effort and will help you complete tasks correctly and efficiently.
Electrical Conductors	This content will help you understand the different types of wire and what they do when you are in homes.
Conductor Terminations	Termination points are the weakest link in any electrical circuit. Making quality terminations will ensure this link doesn't fail prematurely.
Electricity Basics	As a trades person, you'll need to have a basic understanding of electricity: both to perform job-related tasks and to stay safe.
Types of Electrical Circuits	Get a high-level overview of electrical circuits, how they work and what happens when there is a short circuit.
Understanding Electrical Measurements	Discover what multimeters are, how to test AC and DC systems, how to test amp draw on a circuit and how to test continuity in a system or component.
Volts, Amps, Watts and Ohms	Get to know the common concepts of electricity.
Common Hand Tools	We'll introduce cutting and shaping tools, measurement and layout tools, tightening and loosening tools.
Common Measurement Tools	Almost everyone on earth has used a measuring tape or ruler at one point or another. Although they are common, they have many features that make them invaluable to a trades person.
Common Power Tools	You will become familiar with common power tools like drills, saws and others you will need to do your job.
Drawings and Blueprint Reading	You will be introduced to construction drawings and blueprints and will learn what you want to look at in terms of your job's function.
How To Read A Circuit Diagram	Understanding this will help you when installing equipment in a home.
Introduction To Residential Equipment	Introduces different types of furnaces, air handlers, heat pumps, boilers, air conditioners, and ductless systems you will run into.

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Course Order and Descriptions

Switches, Breakers and Disconnects	In this lesson, you will be introduced to the most common switches, breakers, and disconnects used in the HVAC Industry.
Transformers and Their Role In HVAC Systems	Learn about the sequence of operation for a standard oil-fired furnace and discover how to diagnose one in the field.
HVAC Control Devices	You will understand what controls all the different components of the system, how to identify them, and know what they do.
Thermostat and Temperature Controls	Familiarize yourself with the different types of thermostats on the market and the best practices for installing and setting up a new thermostat.
Motors and Capacitors	You will learn about PSC and ECM blower motors and essential testing procedures. You will also learn about capacitors, what they are, and how to test and replace these as well.
Basic Duct Design	You will learn about the benefits of the different types of duct systems and how they are incorporated. You will learn about the basics of return air sizing on a system in the field.
Fans and Duct Materials	Learn about various blower styles and configurations, different fan designs and applications, common duct materials and fittings, how to properly clean a blower assembly, and be able to identify the characteristics of typical grilles, registers, and dampers.
Your Personal Health and Well Being	Examine your current behaviors that impact your health, as well as behaviors you might want to consider to improve your well-being.
Introduction to Heat, Combustion & Furnace Types	You will learn about the fundamentals of heat, safety in cold weather, complete and incomplete combustion, the types of gas furnaces you will encounter, and how to test for carbon monoxide in your customer's home.
Introduction to Furnace Safety Controls	You will learn about roll-out switches, limit switches, pressure switches, and flame sensing devices.
Ignition Systems	This lesson covers spark ignitors, hot surface ignitors, flame sensing devices and how to test and replace them.
Induced Draft Motor Assembly	Learn what induced draft motors do, why they are essential, and how to properly inspect them for proper operation.
Gas Piping, Gas Valves and Burners	You will learn about the proper methods of joining gas piping and checking for gas leaks, you will also learn what gas regulators are and how they affect the equipment you work on.
Introduction to Heat Exchangers	Gain understanding on how heat exchangers work, how they are constructed and what makes them deteriorate.
Venting Heating Systems	We will cover the different types of venting systems you will run across and the materials used for these venting systems.
Oil Heating	Learn about the main system components, the sequence of operation, and you will learn the differences between these compared to gas-fired heating equipment.
Combustion Air	Discover best practices on how to appropriately size combustion air for a mechanical room, and for a condensing furnace or boiler system.
Your Attitude	You are in control of your attitude and the choices you make. Awareness of your choices will help you have more control of your circumstances.
HVAC Level 1 Test	Successfully completing this test will grant you access into the next level.

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Course Order and Descriptions

Level 2: Basic Skills	
Cooling System Overview	You will learn about the main system components that make up the cooling and refrigeration system.
Refrigeration Tools and Measurements	You will learn how to use temperature probes, manifold gauges, and psychrometer.
Checking the Refrigerant Charge	Learn how to get specific readings so you can adequately identify if a system has a correct refrigerant charge.
Diagnosing the Refrigerant Charge	By understanding the check and charge process and how to check superheat and subcooling, you will start to understand what makes up an adequately charged system.
Your Daily Habits	There are certain daily habits and mindsets that will greatly help you grow as a residential service technician.
Maintenance Accessories	Learn about some of the different accessories available to the homeowner that you can provide for them during an annual maintenance visit,
Heating System Maintenance	Learn the standard sequence of operation of most modern-day gas furnaces, and how it eventually will apply to your troubleshooting skills.
Refrigeration System Maintenance	You will learn the importance of maintenance on air conditioning systems, the benefits of clean coils, and airflow.
Working With People	Knowing and understanding what makes people tick will increase your ability to relate to customers and provide a better service experience.
Communication	Focus on how important non-verbal communication is on the job. You will also practice how to be a clear and effective communicator.
Indoor Air Quality	Learning about indoor air quality helps your customer's health and overall safety.
Sheet Metal Duct Systems	Learn how to join sheet metal ductwork, properly suspend and support sheet metal, and methods of proper ways to insulate sheet metal ductwork.
Flexible Duct and Fiberglass Duct Systems	Learn how to correctly fabricate, install, and repair flexible and fiberglass duct systems.
Basic Zoning Systems	We will discuss the major components of a zoning system, what they do, and how to perform basic maintenance on zoning systems.
Evaporative Coolers	You will learn about the different types of evaporative coolers and the various methods of installation.
Goal Setting	Big goals aren't impossible, you just need to approach them the right way. This course focuses on how to set measurable goals.
The Big Picture	You will be introduced to the four key roles of a technician and you will get an overview of what it means to work for an ethical company.
HVAC Level 2 Test	Successfully completing this test will grant you access into the next level.
Level 3: Intermediate Skills	
An Introduction To The Nexstar Service System	You will be introduced to the six steps of the Service System and you will complete reflection questions that will enhance your learning and better prepare you to work in the field with homeowners.

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Course Order and Descriptions

Service System Preparation	You will focus on the behavior needed to minimize callbacks and to provide exceptional service.
Basic Copper Piping Practices	You will be learning the basics of working with copper, including how to identify the different types of copper, how to properly cut, bend, and how to join copper fittings together.
Brazing and Soldering	Learn the industry best practices of soft soldering and brazing.
Recovery, Pressure, Testing and Evacuation	You will learn how to successfully recover, pressure test, and evacuate a system in the field.
Focus On The Greet Step	The lesson dives deep on creating a great first impression.
Air Conditioning System Installation Best Practices	You will learn how to install a lineset properly and how to support it properly, and we will also show you the best practices of installing the outdoor condensing unit and the indoor evaporator coil.
Focus On The Explore Step	You will gain insight into the importance of keeping your eyes and ears open to what the customer truly wants and needs. Asking questions is key.
Design Processes and Evaluations	By understanding what comfort advisors in your company go through, you will be able to gain knowledge of what is involved in the design process.
Duct Sizing and Duct Modifications	Learn more advanced concepts of duct design, friction loss, and how to use a duct calculator (also known as a duct slide rule or ductulator).
Condenser Evaporator Coil Replacement and Repair	We will guide you on a step by step process of how this is done, along with showing you how to repair a damaged coil from a screw puncture.
Focus On The Present Step	Explaining your solution and options in the customer's language will inspire their confidence in you.
Vent Piping Design and Troubleshooting	Learn how to size a common venting system in a residential home.
Focus On The Execute Step	You will focus on all of the things you can do to shine as a craftsman and demonstrate your respect for the customer and their home.
Zone System Design and Installation	We will discuss dampers, bypass dampers, zone control panels, and troubleshooting of these devices along with proper start-up and installation procedures for a zoning system.
Alternative Heating and Cooling Systems	Learn about alternative heating sources, solar systems, geothermal systems, water source heat pumps, wood burning heating equipment, along with Radiant Heating and Cooling Systems.
Focus On The Wrap Up Step	You will focus on how to making sure the customer is satisfied with the work done, following up after the call and critiquing your performance.
What's It Like To Work In HVAC Installation?	Knowing what they do differently than you will give you greater understanding to how your whole company operates.
HVAC Level 3 Test	Successfully completing this test will grant you access into the next level.
Level 4: Advanced Skills and Customer Interactions	
Relays, Sequencers and Solenoids	Learn how to properly troubleshoot the different types of relays, sequencers and solenoid valves on operating equipment in the field.
Service Partner Plans and System Checks	You will learn how to introduce and explain service partner plans and system checks to homeowners.

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Course Order and Descriptions

Troubleshooting Control Boards	Learn the most common methods of troubleshooting control boards.
Dealing With Pushbacks	Learn about being proactive or reactive in responding to objections.
Thermostat and Low Voltage Short Troubleshooting	Learn how to accurately troubleshoot a thermostat and be able to locate a short in a thermostat wire, and we will show you different methods on how to run a new thermostat wire.
Challenging Customer Situations	This course focuses on interesting and challenging situations you may come across in the field.
Troubleshooting Blower Motors	You will learn the basics of troubleshooting the different types of blower motors and how to properly replace them.
Troubleshooting Heating Safety Controls	Review how safety controls operate, and then we will show you how to diagnose these components and replace them in the field.
Induced Draft Motor Troubleshooting and Replacement	You will learn about the induced draft motor, how it works, why it is necessary, and how to properly troubleshoot.
Troubleshooting Igniters and Flame Rectification	You will learn about the different types of hot surface igniters, how they should operate, and how to troubleshoot.
Troubleshooting Gas Valves	We will cover troubleshooting gas valves, smart valves and gas piping issues. You will also learn how to replace a gas valve and installing an LP Conversion Kit.
Heating Exchanger Inspection and Replacement	Learn the best practices on how to troubleshoot a heat exchanger, along with a step-by-step process of how to correctly replace a primary and secondary heat exchanger in a condensing furnace.
Maximizing Efficiency: Help On The Job	You will spend time reviewing time cards, your summary of finding sheet and your personal resources, such as the call center and your dispatcher.
Troubleshooting Electric Heating Elements	Understanding how they work, the sequence of operations, and how to troubleshoot and replace will give you a skill set that will set you apart from other technicians
Troubleshooting Zoning Systems	You will learn how to properly diagnose the system so you know which component has failed and why
Build Your Future	You will review some key customer service concepts taught in NexTech Academy and provide you with ideas on how you can keep your learning going and build mentoring relationships with your colleagues.
Troubleshooting Oil Heating Systems	Learn about the most common problems associated with oil furnaces and how to troubleshoot and fix them.
Troubleshooting Condenser Fan Motors	You will learn the different troubleshooting methods for both PSC and ECM type condenser fan motors. We will then guide you on how to properly replace these motors on equipment
Commissioning Techniques	One of the biggest mis-diagnosed problems involving air conditioning systems is the refrigerant charge. You will be able to identify whether it is an airflow issue, a restriction, or a charging issue.

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Leak Detection Methods	You will be learning the different methods of finding leaks in residential air conditioning systems, common leak locations, how to spot these leaks, and how to properly replace a shrader core and cap on an air conditioner.
Diagnosing Compressors	You will learn the industry's best practices of diagnosing the most common compressor problems. You will also gain a better understanding of what the interpretations mean with your meter.
Replacing Compressors	You will learn the process of replacing a compressor.
Advanced Metering Device Diagnosis and Repair	Understanding the difference between airflow problems and faulty metering devices in the field are paramount to being able to diagnose a refrigerant circuit correctly and efficiently.
HVAC Level 4 Test	Successfully completing this test will grant you graduation from NexTech Academy!

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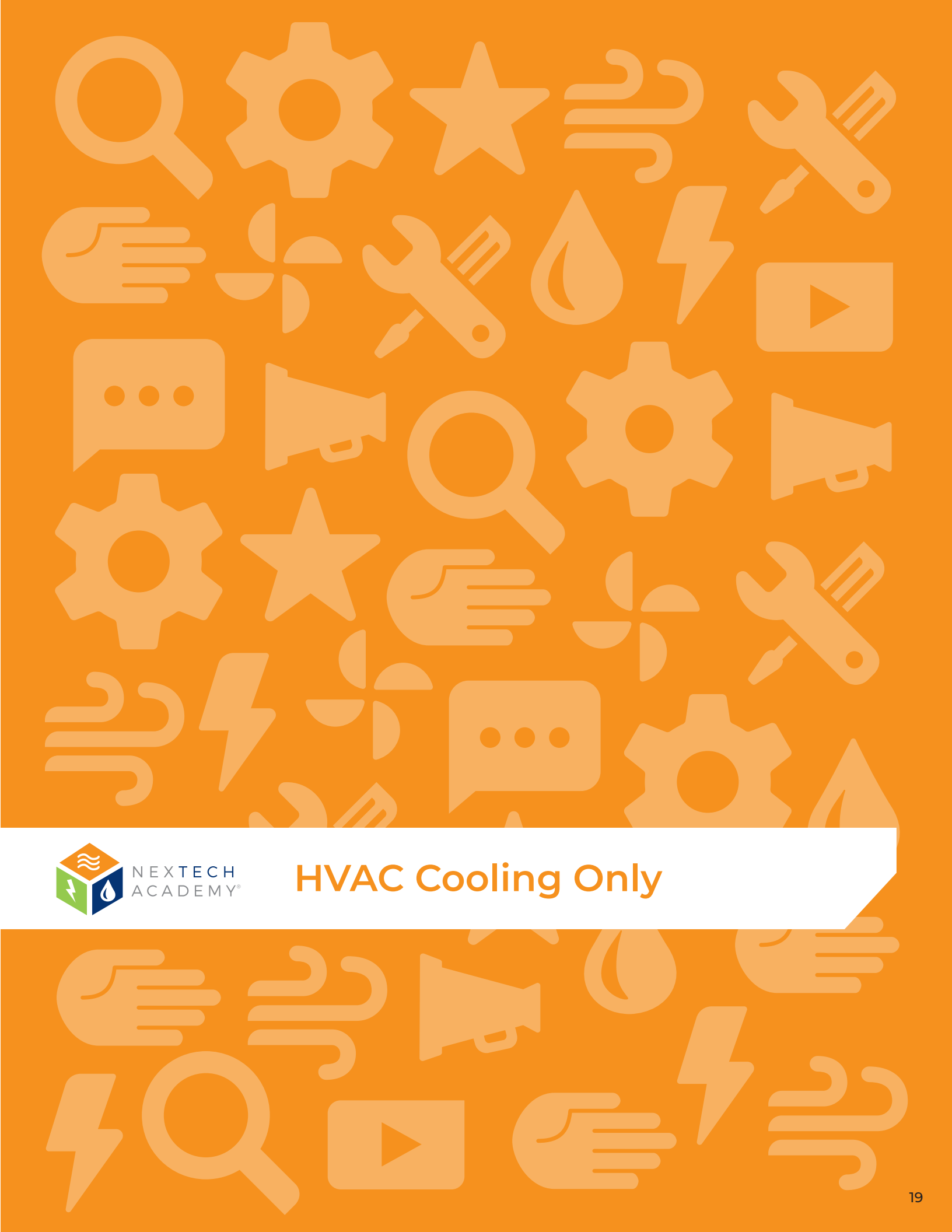
> We use NexTech as a systematic method of training a new employee from a new apprentice to a competent successful technician.
>
> The program incorporates both technical training and the Nexstar Service System process in an organized step-by-step fashion to ensure that staff are all following the same proven system.
>
> It also has reduced management time and accelerated the timeline to get an apprentice trained.

John L Sullivan, Owner
Sullivan Super Service



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Course Order and Descriptions

Level 1: HVAC Fundamentals	
The History of HVAC	Have you ever wondered how HVAC worked 100 years ago? How about 500? This lesson covers the principles of heating, ventilation, air conditioning and refrigeration.
The Modern Day HVAC Industry	Understand the types of equipment you will be working on, along with the social skills you will need to build upon for your future in the industry.
Driving Safety	This is review on safe and defensive driving skills. You still need to have a valid license to operate a company's vehicle.
Electrical Safety	Electrical safety knowledge can be the difference between life and death for you, your coworkers or the homeowners you serve.
Personal Safety	You'll learn the basics of personal protective equipment (PPE).
Safety Awareness	You'll learn how to train your brain and your eyes to identify unsafe conditions. This course also covers regulations and safety standards.
Workspace Safety	You will spend time focusing on workplace procedures that will keep you safe from fire, falls, chemicals and injuring your hands and feet.
Mathematics Used In The Field	Being able to perform accurate measurements and calculations will save you time and effort and will help you complete tasks correctly and efficiently.
Electrical Conductors	This content will help you understand the different types of wire and what they do when you are in homes.
Conductor Terminations	Termination points are the weakest link in any electrical circuit. Making quality terminations will ensure this link doesn't fail prematurely.
Electricity Basics	As a trades person, you'll need to have a basic understanding of electricity: both to perform job-related tasks and to stay safe.
Types of Electrical Circuits	Get a high-level overview of electrical circuits, how they work and what happens when there is a short circuit.
Understanding Electrical Measurements	Discover what multimeters are, how to test AC and DC systems, how to test amp draw on a circuit and how to test continuity in a system or component.
Volts, Amps, Watts and Ohms	Get to know the common concepts of electricity.
Common Hand Tools	We'll introduce tools for cutting and shaping, measurement and layout, tightening and loosening.
Common Measurement Tools	Almost everyone on earth has used a measuring tape or ruler at one point or another. Although they are common, they have many features that make them invaluable to a trades person.
Common Power Tools	You will become familiar with common power tools like drills, saws and more.
Drawings and Blueprint Reading	You will be introduced to construction drawings and blueprints and will learn what you want to look at in terms of your job's function.
How To Read A Circuit Diagram	Understanding this will help you when installing equipment in a home.
Introduction To Residential Equipment	Introduces different types of furnaces, air handlers, heat pumps, boilers, air conditioners, and ductless systems you will run into.
Switches, Breakers and Disconnects	In this lesson, you will be introduced to the most common switches, breakers, and disconnects used in the HVAC Industry.

HVAC Cooling Only

Course Order and Descriptions

Transformers and Their Role In HVAC Systems	Learn about the sequence of operation for a standard oil-fired furnace and discover how to diagnose one in the field.
HVAC Control Devices	You will understand what controls all the different components of the system.
Thermostat and Temperature Controls	Learn the best practices for installing and setting up a new thermostat.
Motors and Capacitors	You will learn about PSC and ECM blower motors and essential testing procedures. You will also learn about testing and replacing capacitors.
Basic Duct Design	You will learn about different types of duct systems and how they are incorporated. You will learn about return air sizing on a system in the field.
Fans and Duct Materials	Learn about various blower styles and configurations, different fan designs and applications, common duct materials and fittings, and how to properly clean a blower assembly.
Your Personal Health and Well Being	Examine your current behaviors that impact your health, as well as behaviors you might want to consider to improve your well-being.
HVAC Level 1 Test	Successfully completing this test will grant you access into the next level.
Level 2: Basic Skills	
Cooling Systems Overview	You will learn about the main system components that make up the cooling and refrigeration system.
Refrigeration Tools and Measurements	You will learn how to use temperature probes, manifold gauges, and psychrometer.
Checking the Refrigerant Charge	Learn how to get specific readings so you can adequately identify if a system has a correct refrigerant charge.
Diagnosing The Refrigerant Charge	By understanding the check and charge process and how to check superheat and subcooling, you will start to understand what makes up an adequately charged system.
Your Daily Habits	There are certain daily habits and mindsets that will greatly help you grow as a residential service technician.
Your Attitude	You are in control of your attitude and the choices you make. Awareness of your choices will help you have more control of your circumstances.
Maintenance Accessories	Learn about some of the different accessories available to the homeowner that you can provide for them during an annual maintenance visit,
Refrigeration System Maintenance	You will learn the benefits of clean coils, and airflow.
Working With People	Knowing and understanding what makes people tick will increase your ability to relate to customers and provide a better service experience.
Communication	Focus on how important non-verbal communication is on the job. You will also practice how to be a clear and effective communicator.
Indoor Air Quality	Learning about indoor air quality helps your customer's health and safety.
Sheet Metal Duct Systems	Learn how to join sheet metal ductwork, properly suspend and support sheet metal, and methods of proper ways to insulate sheet metal ductwork
Flexible Duct and Fiberglass Systems	Learn how to fabricate, install, and repair flexible and fiberglass duct systems.
Basic Zoning Systems	We will discuss how to perform basic maintenance on zoning systems.

HVAC Cooling Only

NEXTECH ACADEMY®

Course Order and Descriptions

Goal Setting	Big goals aren't impossible, you just need to approach them the right way. This course focuses on how to set measurable goals.
The Big Picture	You will be introduced to the four key roles of a technician and you will get an overview of what it means to work for an ethical company.
HVAC Level 2 Test	Successfully completing this test will grant you access into the next level.
Level 3: Intermediate Skills	
An Introduction To The Nexstar Service System	You will be introduced to the six steps of the Service System and you will complete reflection questions that will enhance your learning.
Service System Preparation	You will focus on the behavior needed to minimize callbacks and to provide exceptional service.
Basic Copper Piping Practices	Learn how to identify the different types of copper, how to properly cut, bend, and how to join copper fittings together.
Brazing and Soldering	Learn the industry best practices of soft soldering and brazing.
Recovery, Pressure, Testing and Evacuation	You will learn how to successfully recover, pressure test, and evacuate a system.
Focus On The Greet Step	The lesson dives deep on creating a great first impression.
Air Conditioning System Installation Best Practices	You will learn how to install a lineset properly and how to support it properly, and we will also show you the best practices of installing the outdoor condensing unit and the indoor evaporator coil.
Focus On The Explore Step	You will gain insight into the importance of keeping your eyes and ears open to what the customer truly wants and needs. Asking questions is key.
Design Processes and Evaluations	By understanding what comfort advisors in your company go through, you will be able to gain a better understanding of what is involved in the design process.
Duct Sizing and Duct Modifications	Learn more advanced concepts of duct design, friction loss, and how to use a duct calculator (also known as a duct slide rule or ductulator).
Condenser Evaporator Coil Replacement and Repair	We will guide you on a step by step process of how this is done, along with showing you how to repair a damaged coil from a screw puncture.
Focus On The Present Step	Explaining your solution and options in the customer's language will inspire their confidence in you.
Vent Piping Design and Troubleshooting	Learn how to size a common venting system in a residential home.
Focus On The Execute Step	You will focus on all of the things you can do to shine as a craftsman and demonstrate your respect for the customer and their home.
Zone System Design and Installation	We will discuss dampers, bypass dampers, zone control panels, and troubleshooting these devices.
Alternative Heating and Cooling Systems	Learn about alternative heating sources, solar systems, geothermal systems, water source heat pumps, wood burning heating equipment, along with Radiant Heating and Cooling Systems.
Focus On The Wrap Up Step	You will focus on how to making sure the customer is satisfied with the work done, following up after the call and critiquing your performance.
What's It Like To Work In HVAC Installation?	Knowing what they do differently than you will give you greater understanding to how your whole company operates.

HVAC Cooling Only

Course Order and Descriptions

HVAC Level 3 Test	Successfully completing this test will grant you access into the next level.
Level 4: Advanced Skills and Customer Interactions	
Relays, Sequencers and Solenoids	Learn how to properly troubleshoot the different types of relays, sequencers and solenoid valves on operating equipment in the field.
Service Partner Plans and System Checks	You will learn how to introduce and explain service partner plans and system checks to homeowners.
Troubleshooting Control Boards	Learn the most common methods of troubleshooting control boards.
Dealing With Pushbacks	Learn about being proactive or reactive in responding to objections.
Thermostat and Low Voltage Short Troubleshooting	Learn how to accurately troubleshoot a thermostat and be able to locate a short in a thermostat wire, and we will show you different methods on how to run a new thermostat wire.
Challenging Customer Situations	This course focuses on interesting and challenging situations you may come across in the field.
Troubleshooting Blower Motors	You will learn the basics of troubleshooting the different types of blower motors and how to properly replace them.
Maximizing Efficiency: Help On The Job	You will spend time reviewing time cards, your summary of finding sheet and your personal resources, such as the call center and your dispatcher.
Troubleshooting Electric Heating Elements	Understanding how they work, the sequence of operations, and how to troubleshoot and replace will give you a skill set that will set you apart from other technicians
Troubleshooting Zoning Systems	You will learn how to properly diagnose the system so you know which component has failed and why
Build Your Future	You will review some key customer service concepts taught in NexTech Academy and provide you with ideas on how you can keep your learning going and build mentoring relationships with your colleagues.
Troubleshooting Condenser Fan Motors	You will learn the different troubleshooting methods for both PSC and ECM type condenser fan motors. We will then guide you on how to properly replace these motors on equipment
Commissioning Techniques	One of the biggest mis-diagnosed problems involving air conditioning systems is the refrigerant charge. You will be able to identify whether it is an airflow issue, a restriction, or a charging issue.
Leak Detection Methods	You will be learning the different methods of finding leaks in residential air conditioning systems, common leak locations, how to spot these leaks, and how to properly replace a shrader core and cap on an air conditioner.
Diagnosing Compressors	You will learn the industry's best practices of diagnosing the most common compressor problems. You will also gain a better understanding of what the interpretations mean with your meter.
Replacing Compressors	You will learn the process of replacing a compressor.
Advanced Metering Device Diagnosis and Repair	Understanding the difference between airflow problems and faulty metering devices in the field are paramount to being able to diagnose a refrigerant circuit correctly and efficiently.
HVAC Level 4 Test	Successfully completing this test will grant you graduation from NexTech Academy!