



NEXTECH  
ACADEMY®

# ELECTRICAL 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 <b>educated helper</b> , knowledgeable in tools, safety and materials.
Months 5-9	By the end of Level 2, the student will be an <b>advanced helper</b> 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 <b>experienced a variety of service calls</b> 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 <b>outstanding ambassador for your company</b> .

## 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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# Electrical Curriculum



## Course Order and Descriptions

Level 1: Electrical Fundamentals	
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.
The History of Electricity	Have you ever wondered how electricity has changed in homes from the 1890s until now?
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.
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.
Personal Safety	You'll learn the basics of personal protective equipment (PPE) and how to plan for safety.
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.
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.
Common Hand Tools	We'll introduce cutting and shaping tools, measurement and layout tools, tightening and loosening tools.
Common Power Tools	You will become familiar with common power tools like drills, saws and others you will need to do your job.
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.
Your Attitude	The simplest choices to make: to be happy, present and positive, are not always the easiest. We'll discuss how your attitude impacts your job.
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.
Resources To Expand Your Learning	This course introduces common resources that will contribute to your success as a residential electrician.
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.
Volts, Amps, Watts and Ohms	Get to know the common concepts of electricity: volts, amps, watts and ohms!
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.

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How To Read A Circuit Diagram	Understanding this will help you when installing equipment in a home.
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.
Material Considerations	What is needed to make a complete electrical system or any electrical installation? It is not just about the light you see or the receptacle you use.
Electrical Conductors	You'll focus on different types of wire, size and types of wire insulation.
Conductor Terminations	Termination points are the weakest link in any electrical circuit. Making quality terminations will ensure this link doesn't fail prematurely.
Electrical System and Component Protection	Learn why every electrical system needs fundamental safety components to provide protection and support.
Electrical Safety Devices	By the end of this module you will be able to identify and explain the function and purpose of the key safety devices of a basic electrical system.
Trade Definitions	This course focuses key terminology, acronyms and abbreviations that you will come across in the field.
Your Daily Habits	There are certain daily habits and mindsets that will greatly help you grow as a residential service technician.
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.
Electrical Level 1 Test	Successfully completing this test will grant you access into the next level.
<b>Level 2: Electrical Basic Skills</b>	
Considerations When Drilling Holes	This course focuses on the methods of boring and drilling holes as a means to provide conductor protection and a path to route wiring.
Switching Configurations	At this stage in your training, you are geared up to apply basic switch functions to a customer's home!
Branch Circuits and Feeders	Branch circuits and feeders are two terms that can be dangerous if used interchangeably. This course will teach you that difference.
Sizing Over-current Protection	Determining the load to be served by a circuit is the first step in your electrical circuit design process.
Communication	Focus on how important non-verbal communication is on the job. You will also practice how to be a clear and effective communicator.
A Home's Basic Needs	Electrical installations need to be designed to best suit your customer's needs in a way that is safe and functional. This course will cover the basics that have to be covered.
Fixtures	Let us work together to light up your customer's lives by discovering the benefits and applications of available light fixture types that are used inside the home.
Panels and Related Components	Learn how to recognize and identify common types of main electrical panels, the purpose and function of the main breaker as well as identifying other necessary components.

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Load Calculations	This course will use basic math skills to back up actions and decisions that are made by electricians daily.
Sizing Junction and Pull Boxes	Wiring stops and starts at enclosures. Sizing them appropriately is what you will learn how to do in this course.
Conductor Sizing	Several factors go into conductor selection when installing new circuits or wiring. These will be discussed in this lesson.
Troubleshooting Common Issues	In this course you will learn a logical, systematic approach to identify the source of common electrical issues for both 120v and 240v circuits.
Focus On Low Voltage Systems	As a residential service technician there a few systems you will be questioned about or asked to install beyond the standard 120v/240v house wiring. These include phone, data, TV and doorbell systems.
Goal Setting	What are your goals? What is your plan to achieve them? How does goal setting impact your life?
Service System Preparation	You will focus on the behavior needed to minimize callbacks and to provide exceptional service.
Electrical Level 2 Test	Successfully completing this test will grant you access into the next level.
<b>Level 3: Intermediate Skills</b>	
Grounding and Bonding Systems	You will learn why the grounding and bonding systems are the cornerstone of electrical work.
Surge Protection	This course will demonstrate the importance of surge protection and the correct way to install it.
Improper Wiring Methods	Learn to recognize common issues that stand out visually and indicate imminent danger as it may appear in your customer's existing wiring.
Panel Health Checks	Routine panel health checks and regular maintenance reduce or eliminate the risk of fire due to electrical issues.
Focus On The Greet Step	The lesson dives deep on creating a great first impression.
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.
Focus On The Present Step	Explaining your solution and options in the customer's language will inspire their confidence in you.
Additions and Remodels	Additions and remodels impact a number of different trades, find out what to look out for in this course so you can help create the best experience possible for your customer.
Adding Electrical Components To Finished Homes	This course focuses on the knowledge, tools and tricks needed to navigate your wiring through finished walls and finished spaces.
Running Conduit: Electrical Metallic Tubing	You will discover what makes electrical metallic tubing unique from other wiring methods.
Running Conduit: Rigid Polyvinyl Chloride Conduit	Economical, versatile polyvinyl chloride (PVC) is used in a variety of applications in the building and construction, health care, electronics, automobile and other sectors. This course will focus on how it can be used in your trade.

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Running Conduit: Rigid Metal Conduit	Learning how rigid metallic conduit is used and installed will allow more versatility and variety in your installations.
Running Flexible Conduit	In this course, we will explore three commonly used flexible conduit types: flexible metal conduit, armored liquid-tight or liquid-tight flexible metal conduit, and liquid-tight nonmetallic conduit
Design For Outbuildings	Thoroughly evaluating a customer's wants and needs are what will guide you when presenting options and installing wiring that is needed for outbuildings. This course covers the installation options available based on those needs.
Working With People	Knowing and understanding what makes people tick will increase your ability to relate to customers and provide a better service experience.
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.
Motor Repair and Replacements	This course will fast track you through the most common motor repairs and replacements you will encounter as an electrical service technician.
Exterior Lighting	We will identify the purposes for great exterior lighting and help guide your customers on the best lighting layout.
Landscape Lighting	It's easy for customers to look at the bottom line when exploring landscape options or fall in love with the look of a certain light, but they need you to see the whole picture.
Ceiling Fans	In this course, you will learn to select the proper support type and install ceiling fans for different stages of home construction.
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.
Electrical Level 3 Test	Successfully completing this test will grant you access into the next level.
<b>Level 4: Advanced Skills and Customer Interactions</b>	
Energy Saving Opportunities	This course will guide you towards equipment, tools and best practices to use when helping a customer discover energy-saving opportunities in their homes.
Service Partner Plans and Systems Checks	System checks and service partner plans protect customers, help develop loyalty and generate business during slower seasons. They are critical to the success of the company.
Panel Repairs	You will learn when to offer and how to make panel repairs as well as recognize when replacement is the better option.
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.
Panel Replacements	This course will prepare you for a variety of panel change situations so you are well equipped to investigate, install and communicate properly.
Subpanels	This course will guide you through evaluating existing situations to answer the question: Is a subpanel the best option for my customer?
Service and Meter Installations	This course will demonstrate which components need to be included in an electrical service installation or replacement.
Challenging Customer Situations	This course focuses on interesting and challenging situations you may come across in the field.

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Troubleshooting Advanced Issues	Advanced troubleshooting tools and techniques will be introduced in this course as you learn effective ways to troubleshoot arc-fault issues, shared neutral circuits, buried splices, or issues affecting multiple circuits.
Dealing With Pushbacks	Learn about being proactive or reactive in responding to objections.
Factory Assembled Structures: Mobile and Manufactured Homes	Mobile and manufactured homes have unique limitations and requirements that you will need to be aware of when dispatched to a service call involving a repair or an addition to one of these structures.
Pools and Hot Tubs	Pools and hot tubs have unique wiring requirements. Identifying when hazards are present in existing installations and knowing how to make it safer is the focus of this course.
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.
Electrical Level 4 Test	Successfully completing this test will grant you graduation from Nex-Tech Academy!