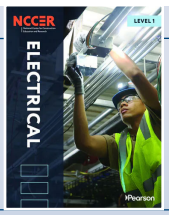
L1 ELECTRICAL



LEVEL 1

Curriculum Notes

- 227.5 Hours (includes Core)
- Revised: 2026, Twelfth Edition, to reflect 2026 NEC®
- Downloadable instructor resources are available.
- A Spanish translation of the 2023 *NEC*® version is available. Please see NCCER's online catalog for more information.

HARDCOVER	ISBN
Trainee Guide: $99.99	978-0-13-591189-1

PAPERBACK	ISBN
Trainee Guide: $99.99	978-0-13-591187-7

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Occupational Overview: The Electrical Industry *(2.5 Hours)*
ISBN 978-0-13-592245-3
(Module ID 26101-26) The electrical field depends on skilled workers. These workers install and maintain residential, commercial, and industrial electrical systems and equipment. In this module, you will learn about career paths in the electrical field and what you must do to be an electrical apprentice. You will also learn about employer and employee responsibilities.

Safety For Electricians *(10 Hours)*
ISBN 978-0-13-592246-0
(Module ID 26102-26) Being an electrician can be a dangerous job. It is important to stay mindful of things that can cause harm and to follow basic safety rules. In this module, you will learn about the dangers of working with electricity. You will also learn about the types of personal protective equipment (PPE) used to keep people safe and the rules related to electrical safety. Finally, you will learn about the Occupational Safety and Health Administration (OSHA) lockout/tagout (LOTO) rule.

Electrical Test Equipment *(7.5 Hours)*
ISBN 978-0-135-92248-4
(Module ID 26112-26) Electricity represents a powerful yet invisible hazard. As an electrician, you must depend on your test instruments to reliably verify the presence or absence of power. In addition, the performance and characteristics of an operating electrical system can only be determined by using reliable instruments. Many calculations rely on accurate measurements. This module introduces common electrical test instruments and how each type is used to safely measure electrical system characteristics.

Now Available! Journeyman Electrician Exam Prep – NCCER is releasing online practices exams through NCCER's learning platform to prepare trainees for taking the electrical licensing exam. The practice exams will consist of 300 questions based on the trainee's choice of either 2020 or 2023 NEC®. Learn more at www.nccer.org/electrician-prep.

Electrical Theory and Circuits *(12.5 Hours)*
ISBN 978-0-13-592241-5
(Module ID 26113-26) Understanding electrical theory and the invisible forces at work is the next step in your journey toward becoming a skilled electrician. This module explains basic atomic theory and how electrical energy moves through conductors. You will also learn about measurable electrical characteristics and the related units of measure. As an electrician, all the work you do is related to the management and containment of electrical energy by creating safe paths between the power source and the point of consumption. The first step is understanding how electricity moves.

Basic Electrical Construction Documents *(7.5 Hours)*
ISBN 978-0-13-592243-9
(Module ID 26110-26) Have you ever seen a site plan? How about an electrical drawing? These are both construction documents. Approved construction plans include these documents as well as project specifications, such as floor plans, detail drawings, lighting plans, power riser diagrams, and schedules. These construction plans, along with the contractor's bid, are legal documents. As a result, everyone working on a project must follow and maintain construction documents. This module describes how to read and interpret drawings used by electricians.

Introduction to the National Electrical Code® *(7.5 Hours)*
ISBN 978-0-13-592244-6
(Module ID 26105-26) The NEC ® sets minimum standards for the safe installation of electrical wiring and equipment. In this module, you will learn the purpose and history of the NEC ®. You will also learn how to navigate the NEC ® to find specific installation requirements.

Outlet, Device, Pull, and Junction Boxes *(22.5 Hours)*
ISBN 978-0-13-592234-7
(Module ID 26114-26) Electricians work with electrical boxes almost every day on every project. Electrical boxes are enclosures that hold or protect wiring, electrical connections, and devices like switches, outlets, and light fixtures. To safely and properly install a complete electrical system, you must know how to select, size, and install all types of electrical boxes. In this module, you will explore the application of different electrical boxes. You will also learn how to calculate the NEC® fill requirements for outlet boxes and size requirements for junction boxes.

Wireways, Raceways, and Fittings *(22.5 Hours)*
ISBN 978-0-13-592235-4
(Module ID 26108-26) Electrical wireways and raceways protect conductors, cables, and busbars. It is important to know how to choose the right material and install these systems properly. Improving installation skills requires knowledge and practice. In addition to describing the various raceway systems available, this module will explain how to select and install these systems based on NEC ® requirements.

Conduit Preparation and Bending *(25 Hours)*
ISBN 978-0-13-592237-8
(Module ID 26115-26) Installing conduit of all types often requires many changes of direction, ranging from simple offsets at the point of termination to angular offsets and saddles at columns, beams, and similar obstructions. In most cases, conduit must be cut, reamed, and threaded prior to bending. This module provides training in the preparation and bending of conduit. Although the mathematical principles of bending apply to all types of benders, each type of bender has its own unique characteristics and capabilities. Training and practice will help you develop the necessary skills to master conduit fabrication using a variety of tools.

Conductors and Cables *(12.5 Hours)*
ISBN 978-0-13-592238-5
(Module ID 26109-26) As an electrician, you may need to select the correct conductor or cable for a job. You may also need to pull the conductors or cables through conduit to their termination points. In this module, you will learn about common conductor and cable types, markings, and color codes. You will also learn about the electric current rating for conductors in various environments, and how to install conductors in conduit and raceways.

Dwelling Wiring *(20 Hours)*
ISBN 978-0-13-592240-8
(Module ID 26111-26) Faulty wiring in a home can cause long-term problems. To construct a reliable electrical system, it is important to understand the basic steps in planning and installing the system. Many systems and devices will rely on electrical power, and most require the wiring to be in place before the walls go up. In this module, you will learn how the electrical system in a dwelling comes together, as well as some of the relevant NEC ® requirements.

L2 ELECTRICAL

LEVEL 2

Curriculum Notes

- 150 Hours
- Revised: 2026, Twelfth Edition, to reflect 2026 NEC®
- Downloadable instructor resources are available.

HARDCOVER	ISBN
Trainee Guide: $137.32	978-0-13-593579-8
PAPERBACK	**ISBN**
Trainee Guide: $137.32	978-0-13-593577-4

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Conductor Installations *(12.5 Hours)*

ISBN 978-0-13-593590-3

(Module ID 26206-26) In many cases, the installation of conductors in raceway systems is a routine exercise. Some installation scenarios, however, require a great deal of planning and execution by a well-oiled team of craftworkers. Learning advanced practices about conductor installation helps ensure your safety, minimize the labor and materials required, and protect the conductors. This module explains how to prepare for an installation, as well as how to set up and complete an installation with your team.

Alternating Current *(17.5 Hours)*

ISBN 978-13-593593-4

(Module ID 26201-26) For safe and successful electrical installations, it's important to have a sound understanding of both direct current (DC) and alternating current (AC) electrical principles. This module covers the difference between AC and DC,; how AC is generated,; the components of the AC waveform,; the effects of capacitance and inductance on AC circuits, and how to calculate power.

Fundamental Control Concepts *(12.5 Hours)*

ISBN 978-0-13-593596-5

(Module ID 26211-26) Relays are electromagnetic devices that are often used to provide low-voltage control over both low- and line-voltage loads. Since relays are not designed to handle a significant amount of current, control devices called contactors are used to make and break the electrical circuit serving high-current loads, such as motors and electric heaters. However, motor circuits often require motor overload protection to be incorporated into the controls. This module describes the operating principles of relays, contactors, and other common control devices. You will also learn basic troubleshooting techniques for these devices.

Practical Applications of Lighting *(25 Hours)*

ISBN 978-0-13-593597-2

(Module ID 26212-26) Electric lighting systems and fixtures provide illumination designed to maximize comfort and minimize eyestrain in many different settings. This module introduces the principles of human vision and the characteristics of light as a foundation to understanding how lighting systems are designed. A variety of luminair examples and lighting systems are introduced for both indoor and outdoor applications. Operating characteristics, installation requirements, lighting controls, and energy management system applications are also discussed in this module.

Cable Tray *(10 Hours)*

ISBN 978-0-13-593589-7

(Module ID 26207-26) Cable trays are commonly used to support conductors and cables in heavy commercial and industrial applications. This module introduces various types of cable tray and their structural support systems. It also explains how to calculate structural loads imposed on a cable tray system to ensure their integrity, and how to calculate the allowable fill per the NEC®.

Motors: Theory, Application, and Calculations *(25 Hours)*

ISBN 978-0-13-593598-9

(Module ID 26213-26) The electric motor is the workhorse of modern industry. Its applications are virtually unlimited in scope. Motors require compatible electrical circuits with features that support their unique operating characteristics. This module describes the construction and characteristics of various motors, enabling you to better understand their power and protection requirements. You will also practice the calculations required to size motor circuit conductors, overcurrent protection, and overload protection.

Conductor Terminations and Splices *(7.5 Hours)*

ISBN 978-0-13-593600-9

(Module ID 26208-26) As a technician, you must fabricate connections and terminate wiring in the field to make repairs and complete electrical installations. These tasks include joining circuits and conductors together using a variety of wire connectors and splices. This module presents safe and effective methods used to create sound electrical connections that provide reliable power flow.

Grounding and Bonding *(15 Hours)*

ISBN 978-0-13-593603-0

(Module ID 26209-26) The grounding system is an important part of an alternating current (AC) electrical system. Its purpose is to protect people and equipment against the various electrical faults that can occur. This module presents the grounding and bonding requirements of the NEC®. It also explains how to size main and system bonding jumpers as well as the grounding electrode conductors (GECs) and equipment grounding conductors (EGCs) for various AC electrical systems.

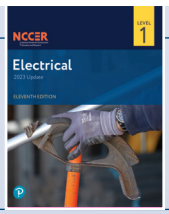
Circuit Breakers and Fuses *(25 Hours)*

ISBN 978-0-13-593604-7

(Module ID 26214-26) All electrical circuits and their components are subject to destructive overcurrent conditions resulting from harsh environments, deterioration, destruction, or system overload. Overcurrent protective devices are essential to prevent costly fires, personal injury and damage to electrical system components like conductors, transformers, and motors. This module describes the operating principles of overcurrent protective devices and explains how they are applied in today's electrical systems.

L1 ELECTRICAL

LEVEL 1



Curriculum Notes

- 190 Hours (includes Core)
- Revised: 2023, Eleventh Edition, to reflect 2023 NEC®
- Downloadable instructor resources are available.
- A Spanish translation is available. Please see NCCER's online catalog for more information.

PAPERBACK	ISBN
Trainee Guide: $74.99	978-0-13-793486-7
DIGITAL	**ISBN**
NCCERconnect Access Card: $74.99	978-0-13-793497-3
NCCERconnect + Paperback Trainee Guide: $104.99	978-0-13-793501-7

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Occupational Overview: The Electrical Industry *(2.5 Hours)*
ISBN 978-0-13-817449-1
(Module ID 26101-23) Provides an overview of the electrical craft and discusses the career paths available to electricians, including apprenticeship requirements.

Now Available! Journeyman Electrician Exam Prep – NCCER is releasing online practices exams through NCCER's learning platform to prepare trainees for taking the electrical licensing exam. The practice exams will consist of 300 questions based on the trainee's choice of either 2020 or 2023 NEC®. Learn more at www.nccer.org/electrician-prep.

Safety For Electricians *(10 Hours)*
ISBN 978-0-13-817451-4
(Module ID 26102-23) Discusses hazards and describes the various types of personal protective equipment (PPE) used to reduce injuries. Covers the standards related to electrical safety and the OSHA-mandated lockout/tagout rule.

Introduction to Electrical Circuits *(7.5 Hours)*
ISBN 978-0-13-817454-5
(Module ID 26103-23) Discusses basic atomic and electrical theory and electrical units of measurement. Explains how Ohm's law and the power equation can be used to determine unknown values, and introduces electrical schematic diagrams.

Electrical Theory *(7.5 Hours)*
ISBN 978-0-13-817456-9
(Module ID 26104-23) Introduces basic circuits, as well as the methods for calculating the electrical energy within them. Covers resistive circuits, Kirchhoff's voltage and current laws, and circuit analysis.

Introduction to the National Electrical Code® *(7.5 Hours)*
ISBN 978-0-13-817458-3
(Module ID 26105-23) Introduces the NEC® and explains how to use it to find the installation requirements. Provides an overview of the National Electrical Manufacturers Association and Nationally Recognized Testing Laboratories.

Outlet, Device, Pull, and Junction Boxes *(10 Hours)*
ISBN 978-0-13-817460-6
(Module ID 26106-23) Describes the various types of boxes and explains how to calculate the NEC® fill requirements for outlet adjunction boxes under 100 cubic inches (1,650 cubic centimeters).

Hand Bending *(10 Hours)*
ISBN 978-0-13-817466-8
(Module ID 26107-23) Covers methods for hand bending conduit, including 90-degree bends, back-to-back bends, offsets, and saddle bends. Describes how to cut, ream, and thread conduit.

Wireways, Raceways, and Fittings *(20 Hours)*
ISBN 978-0-13-817467-5
(Module ID 26108-23) Introduces various types of raceway systems, along with their installation and NEC® requirements. Describes the use of various conduit bodies.

Conductors and Cables *(10 Hours)*
ISBN 978-0-13-817469-9
(Module ID 26109-23) Discusses conductor types, cable markings, color codes, and ampacity derating. Describes how to install conductors using fish tape and power conduit fishing systems.

Basic Electrical Construction Documents *(7.5 Hours)*
ISBN 978-0-13-817471-2
(Module ID 26110-23) Describes how to interpret electrical drawings, including the use of architect's and engineer's scales.

Residential Wiring *(15 Hours)*
ISBN 978-0-13-817474-3
(Module ID 26111-23) Covers basic load calculations and NEC® requirements for residential electrical systems. Describes how to lay out branch circuits, install wiring, size outlet boxes, and install wiring devices.

Electrical Test Equipment *(5 Hours)*
ISBN 978-0-13-817475-0
(Module ID 26112-23) Covers the applications of various types of electrical test equipment. Describes meter safety precautions and category ratings.

L2 ELECTRICAL

LEVEL 2

Curriculum Notes

- 145 Hours
- Revised: 2023, Eleventh Edition, to reflect 2023 NEC®
- Downloadable instructor resources are available.

PAPERBACK	ISBN
Trainee Guide: $102.99	978-0-13-823167-5
DIGITAL	**ISBN**
NCCERconnect Access Card: $102.99	978-0-13-823155-2
NCCERconnect + Paperback Trainee Guide: $129.99	978-0-13-823141-5

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Alternating Current *(17.5 Hours)*
ISBN 978-0-13-825278-6
(Module ID 26201-23) Describes AC circuits and explains how to apply Ohm's law to solve for unknown circuit values.

Motors: Theory and Application *(20 Hours)*
ISBN 978-0-13-825281-6
(Module ID 26202-23) Covers AC and DC motors, including the main components, circuits, and connections.

Electric Lighting *(15 Hours)*
ISBN 978-0-13-825284-7
(Module ID 26203-23) Introduces the principles of human vision and the characteristics of light. Covers different types of light sources and the operating characteristics and installation requirements of various lighting fixtures.

Conduit Bending *(15 Hours)*
ISBN 978-0-13-825286-1
(Module ID 26204-23) Describes how to make conduit bends using mechanical, hydraulic, and electric benders.

Pull and Junction Boxes *(12.5 Hours)*
ISBN 978-0-13-825288-5
(Module ID 26205-23) Explains how to size and install pull and junction boxes. Identifies various specialty enclosures, including conduit bodies, FS and FD boxes, and handholes.

Conductor Installations *(10 Hours)*
ISBN 978-0-13-825291-5
(Module ID 26206-23) Describes how to prepare conduit for conductors. Explains how to set up and complete a cable-pulling operation.

Cable Tray *(7.5 Hours)*
ISBN 978-0-13-825292-2
(Module ID 26207-23) Discusses various types of cable tray, supports, and associated fittings. Explains how to determine the loads on a cable tray and calculate fill per NEC® requirements..

Conductor Terminations and Splices *(7.5 Hours)*
ISBN 978-0-13-825295-3
(Module ID 26208-23) Explains how to prepare cable ends for terminations and splices. Describes how to train cable at termination points and describes crimping techniques.

Continued on following page

Grounding and Bonding *(15 Hours)*
ISBN 978-0-13-825297-7
(Module ID 26209-23) Explains the grounding and bonding requirements of NEC Article 250. Covers how to size the main and system bonding jumpers and the grounding electrode conductor for various AC systems.

Circuit Breakers and Fuses *(12.5 Hours)*
ISBN 978-0-13-825299-1
(Module ID 26210-23) Describes the operating principles of circuit breakers and fuses, and explains how to select and install overcurrent devices.

Control Systems and Fundamental Concepts *(12.5 Hours)*
ISBN 978-0-13-825304-2
(Module ID 26211-23) Describes the operating principles of contactors and relays, including both mechanical and solid-state devices. Explains how to select and install relays and troubleshoot control circuits.

L3 ELECTRICAL

LEVEL 3

Curriculum Notes

- 155 Hours
- Revised: 2023, Eleventh Edition, to reflect 2023 NEC®
- Downloadable instructor resources are available.

PAPERBACK	ISBN
Trainee Guide: $102.99	978-0-13-817488-0
DIGITAL	**ISBN**
NCCERconnect Access Card: $102.99	978-0-13-817498-9
NCCERconnect + Paperback Trainee Guide: $129.99	978-0-13-817477-4

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Load Calculations — Branch and Feeder Circuits *(17.5 Hours)*
ISBN 978-0-13-825305-9
(Module ID 26301-23) Explains how to calculate branch circuit and feeder loads for residential and commercial applications. Covers various derating factors.

Conductor Selection and Calculations *(15 Hours)*
ISBN 978-0-13-825307-3
(Module ID 26302-23) Explains how to make conductor calculations. Covers other factors involved in conductor selection, including insulation types, current-carrying capacity, temperature ratings, and voltage drop.

Practical Applications of Lighting *(12.5 Hours)*
ISBN 978-0-13-825310-3
(Module ID 26303-20) Describes various luminaires and the types of luminaires suited for various applications. Covers dimming, lighting controls, and energy management systems.

Hazardous Locations *(15 Hours)*
ISBN 978-0-13-825312-7
(Module ID 26304-23) Presents the NEC® requirements for equipment installed in hazardous locations.

Overcurrent Protection *(25 Hours)*
ISBN 978-0-13-825314-1
(Module ID 26305-23) Explains how to size and select circuit breakers and fuses for various applications. Covers short circuit calculations and troubleshooting.

Distribution Equipment *(12.5 Hours)*
ISBN 978-0-13-825317-2
(Module ID 26306-23) Discusses switchboards and switchgear, including installation, grounding, and maintenance requirements. Covers ground fault relay testing.

Transformers *(12.5 Hours)*
ISBN 978-0-13-825319-6
(Module ID 26307-23) Describes the construction, operation, and applications of various transformers. Covers transformer connections and grounding requirements.

Commercial Electrical Services *(10 Hours)*
ISBN 978-0-13-825321-9
(Module ID 26308-23) Covers the components, installation considerations, and NEC® requirements for commercial services.

Motor Calculations *(12.5 Hours)*
ISBN 978-0-13-825322-6
(Module ID 26309-23) Covers the calculations required to size the conductors and overcurrent protection required for motor applications.

Voice, Data, & Video *(10 Hours)*
ISBN 978-0-13-825327-1
(Module ID 26310-23) Covers the installation, termination, and testing of these systems.

Motor Controls *(12.5 Hours)*
ISBN 978-0-13-825328-8
(Module ID 26311-23) Provides information on selecting, sizing, and installing motor controllers, as well as control circuit pilot devices and basic relay logic.

L4 ELECTRICAL

LEVEL 4

Curriculum Notes

- 182.5 Hours
- Revised: 2023, Eleventh Edition, to reflect 2023 NEC®
- Downloadable instructor resources are available.

PAPERBACK	ISBN
Trainee Guide: $102.99	978-0-13-817621-1
DIGITAL	**ISBN**
NCCERconnect Access Card: $102.99	978-0-13-817629-7
NCCERconnect + Paperback Trainee Guide: $129.99	978-0-13-817620-4

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Load Calculations — Feeders & Services *(20 Hours)*
ISBN 978-0-13-828909-6
(Module ID 26401-23) Covers basic calculations for commercial and residential applications, including raceway fill, conductor derating, and voltage drop.

Health Care Facilities *(10 Hours)*
ISBN 978-0-13-828910-2
(Module ID 26402-23) Covers the installation, alarm system, and backup system requirements of electrical systems in health care facilities, including the requirements for life safety and critical circuits.

Standby and Emergency Systems *(10 Hours)*
ISBN 978-0-13-828913-3
(Module ID 26403-23) Explains the NEC® installation requirements for electric generators and storage batteries used during such emergency situations.

Basic Electronic Theory *(10 Hours)*
ISBN 978-0-13-828915-7
(Module ID 26404-23) Explains the function and operation of basic electronic devices, including semiconductors, diodes, rectifiers, and transistors.

Fire Alarm Systems *(15 Hours)*
ISBN 978-0-13-828917-1
(Module ID 26405-23) Explores the technologies, codes, and wiring approaches used to assemble a fire alarm system. Examines installation and troubleshooting techniques.

Specialty Transformers *(10 Hours)*
ISBN 978-0-13-828918-8
(Module ID 26406-23) Covers various types of transformers, and provides information on selecting, sizing, and installing them.

Continued on following page

Advanced Controls *(20 Hours)*
ISBN 978-0-13-828919-5
(Module ID 26407-23) Discusses applications and operating principles of various control system components, such as solid-state relays, reduced-voltage starters, and adjustable-frequency drives. Covers basic troubleshooting procedures.

HVAC Controls *(15 Hours)*
ISBN 978-0-13-828921-8
(Module ID 26408-23) Provides a basic overview of HVAC systems and their controls. Also covers electrical troubleshooting and NEC® requirements.

Heat Tracing and Freeze Protection *(10 Hours)*
ISBN 978-0-13-828924-9
(Module ID 26409-23) Presents heat-tracing and freeze-protection systems along with various applications and installation requirements.

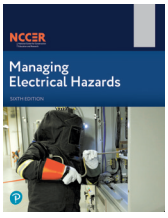
Motor Operation and Maintenance *(10 Hours)*
ISBN 978-0-13-828926-3
(Module ID 26410-23) Covers motor care procedures, including cleaning, testing, and preventive maintenance. Describes basic troubleshooting procedures.

Medium-Voltage Terminations/Splices *(10 Hours)*
ISBN 978-0-13-828927-0
(Module ID 26411-23) Identifies types of medium-voltage cable and describes how to make various splices and terminations. Covers hi-pot testing.

Special Locations *(20 Hours)*
ISBN 978-0-13-828928-7
(Module ID 26412-23) Describes the NEC® requirements for selecting and installing equipment, enclosures, and devices for special locations that require unique attention. Locations include places of public assembly, theaters, carnivals, agricultural and livestock facilities, marinas, swimming pools, and temporary facilities.

Introduction to Leadership *(22.5 Hours)*
ISBN 978-0-13-828931-7
(Module ID 46100) (Lockdown) Introduces leadership skills and different leadership styles, as well as communication and problem solving techniques. Jobsite safety and safety leadership are also discussed. Introduces business topics that are important to understand for construction projects.

Managing Electrical Hazards



12.5 Hours
Revised: 2024, Sixth Edition
Module ID 26501-24

PAPERBACK
Trainee Guide: $39.99

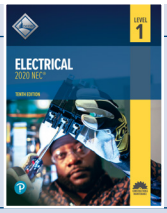
ISBN
978-0-13-831869-7

- A copy of NFPA 70E®, *Standard for Electrical Safety in the Workplace*, 2024 Edition, is required material for this course. To order, contact NFPA at www.nfpa.org or 1-800-344-3555.

Describes how to assess and eliminate shock, arc blast, and arc flash hazards using the practical safe working requirements detailed in NFPA 70E: Standard for Electrical Safety in the Workplace®. Where it is not possible to eliminate a hazard, an energized electrical work permit must be completed, and workers must be protected by appropriate safety procedures and personal protective equipment.

L1 ELECTRICAL

LEVEL 1



Curriculum Notes

- 187.5 Hours (includes Core)
- Revised: 2020, Tenth Edition, to reflect 2020 NEC®
- Downloadable instructor resources are available.
- A Spanish translation is available.
  Please see NCCER's online catalog for more information.

PAPERBACK	ISBN
Trainee Guide: $74.99	978-0-13-690853-1
DIGITAL	**ISBN**
NCCERconnect Access Card: $74.99	978-0-13-690852-4
NCCERconnect + Hardcover Trainee Guide: $104.99	978-0-13-731057-9
NCCERconnect + Paperback Trainee Guide: $104.99	978-0-13-731062-3

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Occupational Overview: The Electrical Industry *(2.5 Hours)*
ISBN 978-0-13-690875-3
(Module ID 26101-20) Provides an overview of the electrical craft and discusses the career paths available to electricians, including apprenticeship requirements.

Now Available! Journeyman Electrician Exam Prep – NCCER is releasing online practices exams through NCCER's learning platform to prepare trainees for taking the electrical licensing exam. The practice exams will consist of 300 questions based on the trainee's choice of either 2020 or 2017 NEC®. Learn more at www.nccer.org/electrician-prep.

Safety For Electricians *(10 Hours)*
ISBN 978-0-13-690864-7
(Module ID 26102-20) Discusses hazards and describes the various types of personal protective equipment (PPE) used to reduce injuries. Covers the standards related to electrical safety and the OSHA-mandated lockout/tagout rule.

Introduction to Electrical Circuits *(7.5 Hours)*
ISBN 978-0-13-690893-7
(Module ID 26103-20) Introduces electrical concepts used in Ohm's law and how the power equation can be used to determine unknown values. Covers basic atomic theory and electrical theory, electrical schematic diagrams, and electric power equations.

Electrical Theory *(7.5 Hours)*
ISBN 978-0-13-69089-20
(Module ID 26104-20) Introduces basic circuits, as well as the methods for calculating the electrical energy within them. Covers resistive circuits, Kirchhoff's voltage and current laws, and circuit analysis.

Introduction to the National Electrical Code *(7.5 Hours)*
ISBN 978-0-13-690888-3
(Module ID 26105-20) Introduces the NEC® and explains how to use it to find the installation requirements. Provides an overview of the National Electrical Manufacturers Association and Nationally Recognized Testing Laboratories.

Device Boxes *(10 Hours)*
ISBN 978-0-13-690874-6
(Module ID 26106-20) Describes the various types of boxes and explains how to calculate the NEC® fill requirements for outlet adjunction boxes under 100 cubic inches (1,650 cubic centimeters).

Hand Bending *(10 Hours)*
ISBN 978-0-13-690873-9
(Module ID 26107-20) Covers methods for hand bending conduit, including 90-degree bends, back-to-back bends, offsets, and saddle bends. Describes how to cut, ream, and thread conduit.

Wireways, Raceways, and Fittings *(20 Hours)*
ISBN 978-0-13-690887-6
(Module ID 26108-20) Introduces various types of raceway systems, along with their installation and NEC® requirements. Describes the use of various conduit bodies.

Conductors and Cables *(10 Hours)*
ISBN 978-0-13-690862-3
(Module ID 26109-20) Discusses conductor types, cable markings, color codes, and ampacity derating. Describes how to install conductors using fish tape and power conduit fishing systems.

Basic Electrical Construction Documents *(7.5 Hours)*
ISBN 978-0-13-690884-5
(Module ID 26110-20) Describes how to interpret electrical drawings, including the use of architect's and engineer's scales.

Residential Wiring *(15 Hours)*
ISBN 978-0-13-690885-2
(Module ID 26111-20) Covers basic load calculations and NEC® requirements for residential electrical systems. Describes how to lay out branch circuits, install wiring, size outlet boxes, and install wiring devices.

Electrical Test Equipment *(5 Hours)*
ISBN 978-0-13-690866-1
(Module ID 26112-20) Covers the applications of various types of electrical test equipment. Describes meter safety precautions and category ratings.

L2 ELECTRICAL

LEVEL 2

Curriculum Notes

- 145 Hours
- Revised: 2020, Tenth Edition, to reflect 2020 NEC®
- Downloadable instructor resources are available.

PAPERBACK	ISBN
Trainee Guide: $102.99	978-013-689782-8
DIGITAL	**ISBN**
NCCERconnect Access Card: $102.99	978-0-13-689771-2
NCCERconnect + Hardcover Trainee Guide: $129.99	978-0-13-731058-6
NCCERconnect + Paperback Trainee Guide: $129.99	978-0-13-731065-4

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Alternating Current *(17.5 Hours)*
ISBN 978-0-13-689729-3
(Module ID 26201-20) Describes AC circuits and explains how to apply Ohm's law to solve for unknown circuit values.

Motors: Theory and Application *(20 Hours)*
ISBN 978-0-13-689718-7
(Module ID 26202-20) Covers AC and DC motors, including the main components, circuits, and connections.

Electric Lighting *(15 Hours)*
ISBN 978-0-13-689723-1
(Module ID 26203-20) Introduces the principles of human vision and the characteristics of light. Covers different types of light sources and the operating characteristics and installation requirements of various lighting fixtures.

Conduit Bending *(15 Hours)*
ISBN 978-0-13-689760-6
(Module ID 26204-20) Describes how to make conduit bends using mechanical, hydraulic, and electric benders.

Pull and Junction Boxes *(12.5 Hours)*
ISBN 978-0-13-689752-1
(Module ID 26205-20) Explains how to size and install pull and junction boxes. Identifies various specialty enclosures, including conduit bodies, FS and FD boxes, and handholes.

Conductor Installations *(10 Hours)*
ISBN 978-0-13-689717-0
(Module ID 26206-20) Describes how to prepare conduit for conductors. Explains how to set up and complete a cable-pulling operation.

Continued on following page

Cable Tray *(7.5 Hours)*
ISBN 978-0-13-689749-1
(Module ID 26207-20) Discusses various types of cable tray, supports, and associated fittings. Explains how to determine the loads on a cable tray and calculate fill per NEC® requirements.

Conductor Terminations and Splices *(7.5 Hours)*
ISBN 978-0-13-689711-8
(Module ID 26208-20) Explains how to prepare cable ends for terminations and splices. Describes how to train cable at termination points and describes crimping techniques.

Grounding and Bonding *(15 Hours)*
ISBN 978-0-13-689735-4
(Module ID 26209-20) Explains the grounding and bonding requirements of NEC Article 250. Covers how to size the main and system bonding jumpers and the grounding electrode conductor for various AC systems.

Circuit Breakers and Fuses *(12.5 Hours)*
ISBN 978-0-13-689766-8
(Module ID 26210-20) Describes the operating principles of circuit breakers and fuses, and explains how to select and install overcurrent devices.

Control Systems and Fundamental Concepts
(12.5 Hours)
ISBN 978-0-13-689762-0
(Module ID 26211-20) Describes the operating principles of contactors and relays, including both mechanical and solid-state devices. Explains how to select and install relays and troubleshoot control circuits.

L3 ELECTRICAL

LEVEL 3

Curriculum Notes

- 155 Hours
- Revised: 2020, Tenth Edition, to reflect 2020 NEC®
- Downloadable instructor resources are available.

PAPERBACK	ISBN
Trainee Guide: $102.99	978-0-13-690480-9
DIGITAL	**ISBN**
NCCERconnect Access Card: $102.99	978-0-13-690502-8
NCCERconnect + Trainee Guide: $129.99	978-0-13-731066-1

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Load Calculations — Branch and Feeder Circuits
(17.5 Hours)
ISBN 978-0-13-690543-1
(Module ID 26301-20) Explains how to calculate branch circuit and feeder loads for residential and commercial applications. Covers various derating factors.

Conductor Selection and Calculations *(15 Hours)*
ISBN 978-0-13-690549-3
(Module ID 26302-20) Explains how to make conductor calculations. Covers other factors involved in conductor selection, including insulation types, current-carrying capacity, temperature ratings, and voltage drop.

Practical Applications of Lighting *(12.5 Hours)*
ISBN 978-0-13-690514-1
(Module ID 26303-20) Describes various luminaires and the types of luminaires suited for various applications. Covers dimming, lighting controls, and energy management systems.

Hazardous Locations *(15 Hours)*
ISBN 978-0-13-690493-9
(Module ID 26304-20) Presents the NEC® requirements for equipment installed in hazardous locations.

Overcurrent Protection *(25 Hours)*
ISBN 978-0-13-690490-8
(Module ID 26305-20) Explains how to size and select circuit breakers and fuses for various applications. Covers short circuit calculations and troubleshooting.

Distribution Equipment *(12.5 Hours)*
ISBN 978-0-13-690513-4
(Module ID 26306-20) Discusses switchboards and switchgear, including installation, grounding, and maintenance requirements. Covers ground fault relay testing.

Transformers *(12.5 Hours)*
ISBN 978-0-13-690500-4
(Module ID 26307-20) Describes the construction, operation, and applications of various transformers. Covers transformer connections and grounding requirements.

Commercial Electrical Services *(10 Hours)*
ISBN 978-0-13-690526-4
(Module ID 26308-20) Covers the components, installation considerations, and NEC® requirements for commercial services.

Motor Calculations *(12.5 Hours)*
ISBN 978-0-13-690498-4
(Module ID 26309-20) Covers the calculations required to size the conductors and overcurrent protection required for motor applications.

Voice, Data, & Video *(10 Hours)*
ISBN 978-0-13-690537-0
(Module ID 26310-20) Covers the installation, termination, and testing of these systems.

Motor Controls *(12.5 Hours)*
ISBN 978-0-13-690522-6
(Module ID 26311-20) Provides information on selecting, sizing, and installing motor controllers, as well as control circuit pilot devices and basic relay logic.

L4 ELECTRICAL

LEVEL 4

Curriculum Notes

- 182.5 Hours
- Revised: 2020, Tenth Edition, to reflect 2020 NEC®
- Downloadable instructor resources are available.

PAPERBACK	ISBN
Trainee Guide: $102.99	978-0-13-691078-7
DIGITAL	**ISBN**
NCCERconnect Access Card: $102.99	978-0-13-691108-1
NCCERconnect + Trainee Guide: $129.99	978-0-13-731069-2

MODULES

The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

Load Calculations — Feeders & Services *(20 Hours)*
ISBN 978-0-13-691126-5
(Module ID 26401-20) Covers basic calculations for commercial and residential applications, including raceway fill, conductor derating, and voltage drop.

Health Care Facilities *(10 Hours)*
ISBN 978-0-13-691132-6
(Module ID 26402-20) Covers the installation, alarm system, and backup system requirements of electrical systems in health care facilities, including the requirements for life safety and critical circuits.

Standby and Emergency Systems *(10 Hours)*
ISBN 978-0-13-691103-6
(Module ID 26403-20) Explains the NEC® installation requirements for electric generators and storage batteries used during such emergency situations.

Basic Electronic Theory *(10 Hours)*
ISBN 978-0-13-691092-3
(Module ID 26404-20) Explains the function and operation of basic electronic devices, including semiconductors, diodes, rectifiers, and transistors.

Fire Alarm Systems *(15 Hours)*
ISBN 978-0-13-691131-9
(Module ID 26405-20) Explores the technologies, codes, and wiring approaches used to assemble a fire alarm system. Examines installation and troubleshooting techniques.

Specialty Transformers *(10 Hours)*
ISBN 978-0-13-691087-9
(Module ID 26406-20) Covers various types of transformers, and provides information on selecting, sizing, and installing them.

Fire Alarm Systems *(40 Hours)*
ISBN 978-0-13-684394-8
(Module ID 33408) Covers the basics of fire alarm systems, including devices, circuits, system design and installation guidelines, power requirements, control unit programming, testing, and troubleshooting. Explores integration of fire alarms with other systems. Examines both residential and commercial fire alarm applications, emphasizing NEC® requirements and those found in NFPA 72.

Nurse Call and Signaling Systems *(15 Hours)*
ISBN 978-0-13-684382-5
(Module ID 33409) Presents an overview of nurse call and signaling systems as found in hospitals and other healthcare facilities. Covers basic emergency call and duress system requirements based on facility type. Identifies installation requirements based on UL and other building code specifications.

Closed Circuit Television (CCTV) *(30 Hours)*
ISBN 978-0-13-684362-7
(Module ID 33410) Describes the installation and configuration of closed circuit TV systems for small, medium, and large facilities. Explains various equipment and concepts, including cameras, lenses, remote positioning, video recording, cloud storage, and transmission. Covers the roles of the internet and digital technologies. Introduces test and troubleshooting equipment.

Access Control Systems *(35 Hours)*
ISBN 978-0-13-684388-7
(Module ID 33411) Introduces access control systems and applications including, door security and locking devices, card and biometric readers, and current ingress/egress technologies. Emphasizes installation practices as well as building and electrical codes.

EST and Internet of Things (IoT) *(10 Hours)*
ISBN 978-0-13-684363-4
(Module ID 33412) Introduces the history, development, and application of integrated Internet of Things (IoT) technologies as well as their influences on contemporary electronics. Addresses the increased need for component integration and introduces basic IoT devices involved today's systems. Presents an outlook on the future of IoT and its increased demand for ESTs.