

# National Electrical Code® – 2023

4 Days, 2.8 CEUs

This course is developed to provide a comprehensive study of Chapters 1 through 4, including a brief overview of Chapter 5, of the 2023 National Electrical Code® (NEC). Major updates and revisions from previous editions are addressed throughout this course. The class participant learns how to apply the Code to properly install electrical circuits and equipment. This course provides a study of the definitions of electrical terms; requirements for electrical installations, such as branch circuits and grounding systems; wiring methods and materials; overcurrent protection, voltage drop, neutral load and other calculations; the method for determining conductor ampacity; sizing circuits and devices for motors and motor circuits through practical exercises; and more. The content of the NEC®–2023 course also addresses the OSHA 29 CFR 1910.302- .308 mandated requirements for electrical installations. This course is intended for electricians, electrical inspectors and electrical contractors who have a need to meet federal, state and local requirements for performing electrical work.

## Lab and Classroom Attire

AVO is committed to the personal safety of each participant and requires long pants and ANSI rated “safety toe” work shoes for class and lab activities. Lecture courses may involve a tour of a work or shop area and for this reason open toe shoes and shorts are not considered appropriate attire for the classroom.

## Learning Objectives

To receive 2.8 CEUs, participants must attend 4 days of class (28 contact hours) and attain a minimum grade of 80% on the final exam. Upon completion of this course, the participant will demonstrate that they are able to:

- Describe the organization of the 2023 National Electrical Code® and its general requirements.
- Identify and use the various tables.
- Explain grounding and bonding requirements.
- Outline the method for determining conductor ampacity.
- Calculate neutral, branch circuit, and feeder loads.
- Summarize how to calculate electrical enclosure and conduit conductor fill.
- Determine acceptable wiring methods.
- Relate the process of sizing motor circuits and required components.
- List the requirements for GFCI use with temporary wiring.

## SCOPE

### Day 1\* (7 contact hours)

- I. Introduction (1.5 hour)
  - A. Schedule
  - B. Course Outline
  - C. Preface
  - D. History & Development
  - E. Enforcement
- AM Break
- II. Code Introduction and General Requirements (6 hrs)
  - A. Purpose & Scope
  - B. Definitions
  - C. Installation Requirements
- PM Break
  - C. Installation Requirements (cont'd)

### Day 2 (7 contact hours)

- III. Wiring and Protection (7.0 hours)
  - A. Grounded Conductor Requirements
- AM Break
  - B. Branch Circuit Requirements
  - C. Services
- PM Break
  - D. Overcurrent Protection
  - E. Grounding & Bonding
- Day 3 (7 contact hours)**
- IV. Wiring Methods and Materials (7 hours)
  - A. Protection Against Physical Damage
- AM Break
  - B. Conductors for General Wiring
  - C. Wire Bending Space Requirements
- PM Break
  - D. Box Sizing
  - E. Cables & Raceways

### Day 4 (7 contact hours)

- V. Equipment for General Use (5 hours)
  - A. Cords, Cables, and Fixture Wires
- AM Break
  - B. Switches and Receptacles
  - C. Panelboards and Luminaires
  - D. Designing Motor Circuits
  - E. Transformers & Capacitors
- PM Break
- VI. Special Applications (1 hour)
  - A. Special Occupancies
  - B. Special Equipment
  - C. Special Conditions
  - D. Communications Systems
  - E. Tables
  - F. Informative Annexes/Index
- VII. Conclusion (1 hour)
  - A. Review
  - B. Final Exam

\*Class scheduling times may vary based on discussions and size of class



**STANDARD EQUIPMENT LIST**  
**NATIONAL ELECTRICAL CODE® - 2023 Rev 1**

REVISED: April 2023

COURSE NO. 228

BY: IBH

DAYS: 4

<b>TEXT ( PER 1 STUDENT )</b>	
<b>QUANTITY</b>	<b>ITEM</b>
1	<i>NATIONAL ELECTRICAL CODE® - 2023</i> COURSE #228, Rev 1
1	NEC® CODE BOOK 2023 EDITION (NFPA 70)

<b>EQUIPMENT (PER 1 STUDENT)</b>	
<b>QUANTITY</b>	<b>ITEM</b>
1	CALCULATOR

<b>MATERIALS NEEDED (PER CLASSROOM)</b>	
<b>QUANTITY</b>	<b>ITEM</b>
*1	PROJECTOR OR TV WITH PROJECTION CAPABILITIES
*1	DRY ERASE BOARD WITH MARKERS AND ERASERS
*10	STUDENT TABLES
*10	STUDENT CHAIRS

FOR VIRTUAL CLASSES:  
CONTENT MATERIAL WILL BE PROVIDED IN DIGITAL FORMAT