

National Electrical Code® – 2020

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 2020 National Electrical Code®. 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 through practical exercises; the method for determining conductor ampacity through practical exercises; sizing circuits and devices for motors and motor circuits through practical exercises; and more. The content of the NEC®–2020 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. Each participant will receive a softbound copy of the NEC®–2020 standard, along with the AVO textbook.

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 he/she is able to:

- Describe the organization of the 2020 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*

- I. Introduction (0.5 hour)
 - A. Schedule
 - B. Course Outline
- II. Introduction and Gen. Requirements (2 hrs)
 - A. History & Development
 - B. Enforcement

AM Break

- C. Purpose & Scope
- D. Definitions
- E. Installation Requirements

Lunch

- III. Wiring and Protection (4.5 hours)
 - A. Grounded Conductor Requirements

PM Break

- B. Branch Circuit Requirements

Day 2

- III. Wiring and Protection (2 hrs) (cont'd)
 - C. Services
 - D. Overcurrent Protection
 - E. Grounding & Bonding

AM Break

- IV. Wiring Methods and Materials (5 hrs)
 - A. Protection Against Physical Damage

Lunch

- A. Protection Against Physical Damage (cont'd)

PM Break

- A. Protection Against Physical Damage (cont'd)

Day 3

- IV. Wiring Methods and Materials (4 hrs) (cont'd)
 - B. Conductors for General Wiring
 - C. Wire Bending Space Requirements

AM Break

- D. Box Sizing
- E. Cables & Raceways

Lunch

- V. Equipment for General Use (3 hrs)
 - A. Cords, Cables, and Fixture Wires

PM Break

- B. Switches and Receptacles
- C. Panelboards and Luminaires

Day 4

- V. Equipment for General Use (2 hrs) (cont'd)
 - D. Designing Motor Circuits
 - E. Transformers & Capacitors

AM Break

- VI. Special Applications (4 hours)
 - A. Special Occupancies
 - B. Special Equipment and Conditions

Lunch

- C. Communications Systems
- D. Tables
- E. Informative Annexes/Index

Day 4

- VII. Conclusion (1 hour)
 - A. Review
 - B. Final Exam

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