

NATIONAL ELECTRICAL SAFETY CODE (REF:OTSNE001)

Introduction

The National Electrical Safety Code (NEC), published exclusively by the IEEE, sets the ground rules for practical safeguarding of persons during the installation, operation, or maintenance of electric supply and communication lines and associated equipment. The NEC contains the basic provisions that are considered necessary for the safety of employees and the public under the specified conditions.

The NEC is the industry-accepted safety standard for overhead and underground electric utility and communications utility installations. Adopted by most states and Public Service Commissions, NEC covers electric supply and communication lines, equipment, and work practices employed by both public and private electric utility installations.

This training course focuses on the application of the National Electrical Safety Code (NEC) joint use rules and work rules. The course will also provide a general overview of each part of the NEC. The class provides generous time for questions and attendees are encouraged to share their experiences with the class. The presentations are rich in graphics and practical applications. Learning how to apply the code is a must for personnel responsible for operating and maintaining a safe utility system.

DAY 1

1. Relationships between the National Electrical Safety Code and the National Electrical Code.

2. Determining Proper Working Clearances and Free Space Requirements.

3. Services, Feeders and Branch Circuits:

How to determine branch circuit loads for receptacle outlets, multi-outlet assemblies, motors resistance-type ovens, AC welders and lighting fixtures.

- How to determine ampacity and minimum size requirements for feeder conductors.
- How to determine ampacity and minimum size requirements for distribution panels and services.
- How to determine minimum clearances for conductors.
- How to apply rules for more than one service per building.
- How to determine maximum numbers of disconnecting means.

4. Rules and Calculations for Over current Protection:

- Determining conductor ampacities.
- Tap conductor requirements.

DAY 2

5. Grounding and Bonding:

- How to identify DC and AC wiring systems that require grounding.
- How to compute minimum sizes for bonding jumper and grounding electrode conductors.
- New requirements on structural steel and separately derived systems.
- How to ground conductors for supply-side/load-side equipment.
- Special grounding requirements for Data Processing and electronic equipment

6. Acceptable Industrial Wiring Methods:

- General Wiring Methods.
- Temporary Wiring.
- GFCI Requirements.
- Cable Tray.
- Rigid Metal Conduit.
- Liquidtight Flexible Metal Conduit.
- Boxes, Fittings, etc.

7. Equipment for General Use:

- Luminaires and Receptacles.
- Fixed Electric Heating Equipment for Pipelines and Vessels.
- Calculate motor loads, conductor and raceway sizing, disconnecting means and motor controller size.
- Calculations for overload protection, ground-fault/short circuit protection, motor control circuit protection.
- Transformers - how to calculate overcurrent protection for transformers.



8. Hazardous (Classified) Locations:

- Location and General Requirements.
- Special Precaution.
- Area Classification.
- Approval for Class and Properties.
- Marking.
- Temperature.
- How to identify Class I, II, and III locations.
- Protecting hazardous locations from electrical ignition sources.
- Class I, II, and III wiring methods.
- How to apply requirements for intrinsically safe circuits and equipment.
- How to apply requirements for purging and pressurizing enclosures.
- Class I, Zone 0, Zone 1, and Zone 2 alternate area classification methods.

9. Approved Wiring Methods for Hazardous Locations:

- Sealing and Drainage.
- Switches, Circuit Breakers, Motor Controllers, and Fuses.
- Motors and Generators.
- Lighting Fixtures.
- Utilization Equipment.
- Flexible Cords.
- Receptacles and Attachment Plugs.
- Conductor Insulation.
- Signaling, Alarm, Remote-Control, and Communications Systems.
- Live Parts.
- Grounding.
- Surge Protection

