

2014 NATIONAL ELECTRICAL CODE® (NEC)

CLASS FORMAT:

Classroom

STANDARD CLASS SIZE:

NTT recommends a class of no more than 35 participants to obtain the best results.

NTT PROVIDES:

- Two-day (16 contact hours) of on-site instruction
- Textbooks
- Classroom consumables
- Completion certificates
- Shipping and instructor travel logistics

CLIENT PROVIDES:

- Classroom of 500 square feet or greater
- Projection screen, white board and/or flip chart(s)

The purpose of the 2014 NEC® is the practical safeguarding of persons and property from hazards arising from the use of electricity. The requirements in the 2014 NEC® address the fundamental principles of installation for safety.

NEW OR REVISED ARTICLES FOR 2014

- Article 393—Low Voltage Suspend Ceiling Power Distribution Systems
- Article 646—Modular Data Centers
- Article 728—Fire Resistant Cable Systems
- Article 750—Energy Management Systems
- Symbol requirements for controlled receptacles
- DC voltage requirements expanding
- Increasing the voltage threshold from 600 volts to 1,000 volts
- Electrical Safety labeling requirements changing and new sections added
- Increased requirements for GFCIs in laundry areas, facilities like car washes, and generator receptacles
- AFCI requirements expanding into laundry rooms and kitchens as the NEC move towards whole-house protection
- New section on Ground Fault Protection of equipment Exception for XHHW-2 conductors for specified temperature corrections for ampacity values
- Mounting of luminaires
- Increasing receptacle requirements in health care facilities
- Deleting the term “Emergency Systems” in health care facilities
- Moving several definitions from individual articles to Article 100

NEC 70

NFPA

70E

Arc Flash

70B

**Preventative
Maintenance**



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ALTERNATE ENERGY, GREEN TECHNOLOGIES, AND IT EQUIPMENT CHANGES

- Revised Article 625: Updates on safe battery charging for plug-in hybrid vehicles that reduce the risk of explosion
- Revisions to Article 645: IT Equipment
- New Article 694: First-time requirements for small wind electric systems
- Revised Article 705: Interconnecting generators, windmills, and solar and fuel cells with other power supplies
- New Article 840: The increased demand for broadband communication systems with requirements for wireless, routers, and wireless disconnects

OTHER REQUIREMENTS FOCUSED ON WORKPLACE SAFETY

- Provisions on electrical installations over 600 volts
- 240.87: Means to reduce incident energy
- New Article 399: Incorporates requirements for overhead distribution systems for large electrical system users, such as school or business campus settings
- 408.4B: Labeling at subpanels to identify feeder supply source
- 450.14: Disconnecting means for transformers

NEC COURSE AGENDA | 2-Day Classroom

APPLYING THE NEC ARTICLE 90

- NEC process and definitions
- Equipment examination
- Code change introduction
- Metric and standard units

ELECTRICAL INSTALLATIONS ARTICLE 110

- Approval
- Conductors
- Equipment
- Mechanical installations
- Mounting and cooling
- Electrical connections
- Arc flash protection
- Spaces about electrical equipment

BRANCH CIRCUITS AND FEEDERS ARTICLE 210

- Branch circuits
 - Review of Code changes
 - Branch circuit ratings
 - Multiwire branch circuits
 - Identification of ungrounded conductors
 - Color code for branch-circuit grounded conductors
 - Color code for branch-circuit equipment grounding conductors
- Receptacle and cord connectors
 - Replacing receptacles
 - Review of code changes
 - Dwelling units
 - Bathrooms
 - Garages and accessory buildings
- Buildings
 - Other than dwelling units
 - Required branch circuits
- Branch-circuit ratings 210.19
 - Review of code changes
 - Minimum size conductors
 - Overcurrent protection

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NEC COURSE AGENDA | 2-Day Classroom, continued

- Feeders
 - Review of code changes
 - Minimum rating and size
 - Feeders with common neutral
 - Identifying high-leg in Delta 4-wire systems
 - Ground-fault protection of equipment

SERVICES ARTICLE 230

- Review of Code changes
- Definitions
- Service limitations
 - Number of services
 - Conductors—outside of buildings
 - Service raceways and seals
 - Clearance from openings
- Overhead service-drop conductors
- Underground service-lateral conductors
- Service-entrance conductors
- Service Equipment
 - AIC rating
 - Identification
 - Disconnecting means
 - Ground-fault protection of equipment

CONDUCTORS AND OVERCURRENT PROTECTION ARTICLE 240

- Conductors
- Ampacity
 - Insulation ratings
 - Ambient temperature
- Overcurrent protection
 - Review of code changes
 - Protection of conductors
 - Ampere ratings
- Location of overcurrent protection devices
 - Underground conductor
 - Grounded conductor
 - Circuit location
- Overcurrent Devices
 - Plug and cartridge fuses
 - Circuit breakers
 - CB markings

GROUNDING & BONDING ARTICLE 250

- Review of Code changes
- Grounding terminology
- Grounding systems
- Grounding equipment and enclosures
- Grounding means
- Bonding
 - Services
 - Bonding over 250 volts
 - Main and equipment bonding jumpers
- Grounding Electrode System—Part III
- Equipment Grounding Conductors

WIRING METHODS ARTICLE 300

- Wiring Methods
 - Conductors of same circuit
 - Conductors of different systems
 - Protection from physical damage
 - Underground installations
 - Protection against corrosion
 - Mechanical continuity of raceways and cables
 - Length of conductors at outlet box
 - Boxes, conduit bodies, or fittings required
- Supporting conductors in a vertical raceway
- Preventing heating effects of inductive current in metallic parts
- Securing integrity of fire-resistant-rated walls
- Preventing spread of toxic fumes in an air-handling system

WIRING MATERIALS—RACEWAYS AND BOXES ARTICLE 300

- Review of Code changes
- Raceway systems
 - Rigid metal and nonmetallic conduit
 - Electrical metallic tubing
 - Flexible metal conduit
 - Liquid-tight flexible metal and nonmetallic conduit
- Cable Assemblies
 - Metal-clad cable
 - Armored cable
 - Nonmetallic-sheathed cable

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NEC COURSE AGENDA | 2-Day Classroom, continued

- Other wiring systems
 - Cable Tray Systems
 - Wireways
 - Busways
 - Auxiliary gutters
- Boxes, Conduit Bodies, and Fittings

WIRING MATERIALS

- Review of Code changes
- Switches Article 404
- Switchboards and panelboards

ARTICLE 408

- Panelboards
 - Grounding of panelboards

EQUIPMENT FOR GENERAL USE—ARTICLE 400

- Review of Code changes
- Flexible Cords and Flexible Cables
- Luminaries Article 410
 - Luminaries locations
 - Flush and recessed fixtures
 - Electric-discharge equipment 1000 volts or less
 - Lighting track
- Receptacles, cord connectors and attachment plugs
 - Tamper resistant receptacles
 - Grounding and non-grounding receptacles
 - Isolated-ground receptacles
 - Hospital-grade receptacles
 - GFCI-type receptacles
- Appliances Article 422
 - Installation requirements
 - Disconnecting means
 - Safety provisions
 - Markings

MOTORS, GENERATORS, A/C & REFRIGERATION, AND FIRE PUMPS

- Motors Article 430
 - Review of Code changes
 - Ampacity and motor ratings

- Markings on motors and multimotor equipment and controllers
- Branch circuit—single motor
- Motor control circuits and centers
- Disconnecting means

MOTORS, GENERATORS, A/C & REFRIGERATION, AND FIRE PUMPS, CONTINUED

- A/C and Refrigeration Equipment Article 440
 - Single equipment
 - Disconnecting means
 - Branch-circuit fuses or circuit breakers
 - Room A/Cs—Part VII
- Fire Pumps Article 695
 - Power source to electric-motor driven fire pumps

TRANSFORMERS ARTICLE 450

- Transformer construction and types
- Transformer installation
- Transformer vaults

SPECIAL LOCATIONS ARTICLE 500 AND 600

- Electrified truck parking spaces

ARTICLE 626

- Review of Code changes
- Hazardous locations Article 500
 - Group classifications
 - Wiring methods
 - Conduit seals
 - Motors and generators
 - Grounding
- Intrinsically safe systems
- Service and Repair Garages Article 511
- Health care facilities
- Places of assembly