



900 E. Hill Ave  
Suite 380  
Knoxville, TN 37915  
www.athomeprep.com  
1-800-952-0910

## Utah Electrical 2020 NEC/NFPA 70E Continuing Education (12 Hours) Syllabus

**Instructor:** Todd Warda

**Narrative Summary:** To renew your Utah Electrical license: The Utah Division of Occupational & Professional Licensing requires that you complete 16 hours of continuing education. You are required to take at least 12 hours of core and the other 4 hours can be professional. The renewal deadline in Utah is November 30th, every two years. @HomePrep is a National Leader in online education. With over 100,000 satisfied students and a course catalog of over 1,000 classes, we are here to help you – Invest in Yourself.

### Utah Electrical 2020 NEC/NFPA 70E Continuing Education (12 Hours) Outline

- I. 2020 NEC Article 90, 100, and 110
  - a. Article 90 Introduction
    - i. 90.2 Scope
      1. Covered
        - a. Commentary - Revision
  - b. Article 100 Definitions
    - i. Accessible
      1. Commentary – Revision
    - ii. Bonding Jumper, Supply-Side
      1. Commentary – Revision
    - iii. Dormitory Unit
      1. Commentary – Addition
    - iv. Equipotential Plane
      1. Commentary – Revision
    - v. Fault Current
    - vi. Fault Current, Available (Available Fault Current)
      1. Commentary – Addition
    - vii. Free Air (as applied to conductors)
      1. Commentary – Addition
    - viii. Grounded Conductor
      1. Commentary – Addition
    - ix. Habitable Room
      1. Commentary – Addition
    - x. Island Mode
      1. Commentary – Addition
    - xi. Labeled

- 1. Commentary – Addition
- xii. Reconditioned
  - 1. Commentary – Addition
- c. Article 110 Requirements for Electrical Installations
  - i. 110.3 Examination, Identification, Installation, Use, and Listing (Product Certification) of Equipment
    - 1. Installation and Use
      - a. Commentary – Revision
  - ii. 110.12 Mechanical Execution of Work
    - 1. Cable and Conductors
      - a. Commentary – Addition
  - iii. 110.14 Electrical Connections
    - 1. Terminal Connection Torque
      - a. Commentary – Revision
  - iv. 110.22 Identification of Disconnecting Means
    - 1. General
      - a. Commentary – Revision
  - v. 110.26 Spaces About Electrical Equipment
    - 1. Large Equipment
      - a. Unobstructed Egress
      - b. Extra Working Space
        - i. Commentary – Revision

## II. 2020 NEC Article 90, 100, and 110 Quiz

### III. 2020 NEC Article 250

- a. Article 250 Grounding and Bonding
  - i. 250.25 Grounding Systems Permitted to Be Connected on the Supply Side of the Disconnect
    - 1. Grounded System
    - 2. Ungrounded Systems
    - 3. Commentary – Addition
  - ii. 250.64 Grounding Electrode Conductor Installation
    - 1. Aluminum or Copper-Clad Aluminum Conductors
      - a. Commentary – Revision
    - 2. Securing and Protection Against Physical Damage
      - a. Not Exposed to physical Damage
      - b. Exposed to Physical Damage
      - c. Smaller Than 6 AWG
      - d. Commentary – Revision
  - iii. 250.68 Grounding Electrode Conductor and Bonding Jumper Connection to Grounding Electrodes
    - 1. Grounding Electrode Conductor Connections
    - 2. Commentary – Revision
  - iv. 250.104 Bonding of Piping Systems and Exposed Structural Metal

1. Metal Water Piping
  - a. General
  - b. Commentary – Revision
  - c. Buildings or Structures Supplied by a Feeder(s) or Branch Circuit(s)
  - d. Commentary – Revision
- v. 250.109 Metal Enclosures
  1. Commentary – Addition
- vi. 250.121 Restricted Use of Equipment Grounding Conductors
  1. Metal Frame of Building or Structure
  2. Commentary – Addition
- vii. 250.122 Size of Equipment Grounding Conductors
  1. Increased in Size
  2. Commentary – Addition
- viii. 250.148 Continuity of Equipment Grounding Conductors and Attachment in Boxes
  1. Connections and Splices
  2. Equipment Grounding Conductor Continuity
  3. Metal Boxes
  4. Nonmetallic Boxes
  5. Commentary – Revision
- ix. 250.184 Solidly Grounded Neutral Systems
  1. Multigrounded Neutral Systems
  2. Commentary – Addition
- x. 250.187 Impedance grounded Systems
  1. Location
  2. Insulated
  3. Grounded system Conductor Connection
  4. Equipment Grounding Conductors
  5. Commentary – Revision

#### **IV. 2020 NEC Article 250 Quiz**

#### **V. 2020 NEC Article 300 and 310**

- a. Article 300 General Requirements for Wiring Methods and Materials
  - i. 300.4 Protection Against Physical Damage
    1. Fittings
    2. Commentary – Revision
  - ii. 300.7 Raceways Exposed to Different Temperatures
    1. Sealing
    2. Commentary – Revision
  - iii. 300.15 Boxes, Conduit Bodies, or Fittings – Where Required
    1. Fitting
    2. Commentary – Revision

- iv. 300.22 Wiring in Ducts Not Used for Air Handling, Fabricated Ducts for Environmental Air, and Other Spaces for Environmental Air (Plenums)
  - 1. Information Technology Equipment
  - 2. Commentary – Revision
- v. 300.25 Exit Enclosures (Stair Towers)
  - 1. Commentary – Addition
- vi. 300.45 Danger Signs
  - 1. Commentary – Revision
- b. Article 310 Conductors for General Wiring
  - i. 310.10 Uses Permitted
    - 1. Dry Locations
    - 2. Dry and Damp Locations
    - 3. Wet Locations
    - 4. Locations Exposed to Direct Sunlight
    - 5. Direct-Burial Conductors
    - 6. Corrosive Conditions
    - 7. General
    - 8. Conductor and Installation Characteristics
    - 9. Separate Cables or Raceways
    - 10. Ampacity Adjustment
    - 11. Equipment Grounding Conductors
    - 12. Bonding Jumpers
    - 13. Commentary – Revision
  - c. Table 310.16 Ampacities of Insulated Conductors with Not More Than Three Current-Carrying Conductors in Raceway, Cable, or Earth (Directly Buried)
    - i. Commentary – Revision
  - d. 310.12 Single-Phase Dwelling Services and Feeders
    - i. Services
    - ii. Feeders
    - iii. Feeder Ampacities
    - iv. Grounded Conductors
  - e. Article 310.12 Single-Phase Dwelling Services and Feeders
  - f. Commentary – Revision

## **VI. 2020 NEC Article 300 and 310 Quiz**

### **VII. 2020 NEC Article 410 Part 1**

- a. Article 410 Luminaires, Lampholders, and Lamps
  - i. 410.2 Definition
    - 1. Clothes Closet Storage Space
  - ii. 410.16(A) Luminaire Types Permitted
  - iii. 410.16(B) Luminaire Types Not Permitted
  - iv. 410.16(C) Location
    - 1. Commentary – Revision
  - v. 410.36(A) Luminaires Supported by Outlet Boxes

- 1. Commentary – Revision
- vi. 410.44 Methods of Grounding
  - 1. Commentary – Deletion
- vii. 410.46 Equipment Grounding Conductor Attachment
- viii. 410.48 Luminaire Wiring – General
- ix. 410.50 Polarization of Luminaires
- x. 410.52 Conductor Insulation
- xi. 410.54(A) Support
- xii. 410.54(B) Size
- xiii. 410.54(C) Twisted or Cabled
- xiv. 410.56(A) Properly Secured
- xv. 410.56(B) Protection Through Metal
- xvi. 410.56(C) Luminaire Stems
- xvii. 410.56(D) Splices and Taps
- xviii. 410.56(E) Stranding
- xix. 410.56(F) Tension
- xx. 410.59 Cord-Connected Showcases
  - 1. Cord Requirements
  - 2. Receptacles, Connectors, and Attachment Plugs
  - 3. Support
  - 4. No Other Equipment
  - 5. Secondary Circuit(s)

#### **VIII. 2020 NEC Article 410 Part 1 Quiz**

#### **IX. 2020 NEC Article 410 Part 2**

- a. Article 410 Luminaires, Lampholders, and Lamps
  - i. 410.62(A) Lampholders
  - ii. 410.62(B) Adjustable Luminaires
  - iii. 410.62(C) Electric-Discharge and LED Luminaires
    - 1. Cord-Connected Installation
    - 2. Provided with Mogul-Base, Screw Shell Lampholders
    - 3. Equipped with Flanged Surface Inlet
  - iv. 410.64 Luminaires as Raceways
    - 1. Listed
    - 2. Through-Wiring
    - 3. Luminaires Connected Together
  - v. 410.68 Feeder and Branch-Circuit Conductors and Ballasts
  - vi. 410.69 Identification of Control Conductor Insulation
    - 1. Commentary – Addition
  - vii. 410.70 Combustible Shades and Enclosures
  - viii. 410.74(A) Marking
  - ix. 410.74(B) Electrical Rating
  - x. 410.82 Portable Luminaires
  - xi. 410.84 Cord Bushings

- xii. 410.90 Screw Shell Type
- xiii. 410.93 Double-Pole Switched Lampholders
- xiv. 410.96 Lampholders in Wet or Damp Locations
- xv. 410.97 Lampholders Near Combustible Material
- xvi. 410.103 Bases, Incandescent Lamps
- xvii. 410.104(A) Enclosures
- xviii. 410.104(B) Switching
- xix. 410.110 General

**X. 2020 NEC Article 410 Part 2 Quiz**

**XI. 2020 NEC Article 410 Part 3**

- a. Article 410 Luminaires, Lampholders, and Lamps
  - i. 410.115(A) Combustible Material
  - ii. 410.115(B) Recessed Incandescent Luminaires
  - iii. 410.116(A)(1) Non-Type IC
  - iv. 410.116(A)(2) Type IC
  - v. 410.116(B) Installation
  - vi. 410.116(C) Installation in Fire-Resistant Construction
    - 1. Commentary – Revision
  - vii. 410.117(A) General
  - viii. 410.117(B) Circuit Conductors
  - ix. 410.117(C) Tap Conductors
  - x. 410.18 Access to Other Boxes
    - 1. Commentary – Addition
  - xi. 410.119 Temperature
  - xii. 410.120 Lamp Wattage Marking
  - xiii. 410.121 Solder Prohibited
  - xiv. 410.122 Lampholders
  - xv. 410.130(A) Open-Circuit Voltage of 1000 Volts or Less
  - xvi. 410.130(B) Considered as Energized
  - xvii. 410.130(C) Transformers of the Oil-Filled Type
  - xviii. 410.130(D) Additional Requirements
  - xix. 410.130(E) Thermal Protection – Fluorescent Luminaires
    - 1. Integral Thermal Protection
    - 2. Simple Reactance Ballasts
    - 3. Exit Luminaires
    - 4. Egress Luminaires
  - xx. 410.130(F) High-Intensity Discharge Luminaires
    - 1. Recessed
    - 2. Inherently Protected
    - 3. Installed in Poured Concrete

**XII. 2020 NEC Article 410 Part 3 Quiz**

**XIII. 2020 NEC Article 410 Part 4**

- a. Article 410 Luminaires, Lampholders, and Lamps
  - i. 410.130(F) High-Intensity Discharge Luminaires
    - 1. Recessed Remote Ballasts
    - 2. Metal Halide Lamp Containment
  - ii. 410.130(G) Disconnecting Means
    - 1. General
    - 2. Multiwire Branch Circuits
    - 3. Location
  - iii. 410.134 Direct-Current Equipment
  - iv. 410.135 Open-Circuit Voltage Exceeding 300 Volts
  - v. 410.136(A) Exposed Components
  - vi. 410.136(B) Combustible Low-Density Cellulose Fiberboard
  - vii. 410.137(A) Metal Cabinets
  - viii. 410.137(B) Separate Mounting
  - ix. 410.137(C) Wired Luminaire Sections
  - x. 410.138 Autotransformers
  - xi. 410.139 Switches
  - xii. 410.140(A) Listing
  - xiii. 410.140(B) Dwelling Occupancies
  - xiv. 410.140(C) Live Parts
    - xv. 410.140(D) Additional Requirements
  - xvi. 410.141(A) Disconnection
  - xvii. 410.141(B) Within Sight or Locked Type
  - xviii. 410.142 Lamp Terminals and Lampholders
  - xix. 410.143(A) type
    - xx. 410.134(B) Voltage
    - xxi. 410.143(C) Rating
    - xxii. 410.143(D) Secondary Connections

**XIV. 2020 NEC Article 410 Part 4 Quiz****XV. 2020 NEC Article 410 Part 5**

- a. Article 410 Luminaires, Lampholders, and Lamps
  - i. 410.144(A) Accessible
  - ii. 410.144(B) Secondary Conductors
  - iii. 410.144(C) Adjacent to Combustible Materials
  - iv. 410.145 Exposure to Damage
  - v. 410.146 Marking
  - vi. 410.151(A) Lighting Track
  - vii. 410.151(B) Connected Load
  - viii. 410.151(C) Locations Not Permitted
  - ix. 410.151(D) Support
    - x. 410.153 Heavy-Duty Lighting Truck
    - xi. 410.154 Fastening

- xii. 410.155(A) Construction
- xiii. 410.155(B) Grounding
- xiv. 410.160 Listing of Decorative Lighting
- xv. 410.170 General
- xvi. 410.172 Listing
- xvii. 410.174 Installation and Use
- xviii. 410.176(B) Installed Location
- xix. 410.178 Flexible Cord
- xx. 410.180 Fittings and Connectors
- xxi. 410.182 Grounding
- xxii. 410.184 Ground-Fault Circuit-Interrupter Protection
- xxiii. 410.186 Support
- xxiv. 410.188 Hazardous (Classified) Locations
- xxv. Commentary – Addition

**XVI. 2020 NEC Article 410 Part 5 Quiz**

**XVII. 2020 NEC Article 645 and 680**

- a. Article 645 Information Technology Equipment
  - i. 645.5(E)(2) Installation Requirements for Electrical Supply Cords, Data Cables, Interconnecting Cables, and Grounding Conductors Under a Raised Floor
    - 1. Commentary – Revision
  - ii. 645.5(E)(3) Installation Requirements for Optical Fiber Cables Under a Raised Floor
    - 1. Commentary – Revision
- b. Article 680 Swimming Pools, Fountains, and Similar Installations
  - i. 680.2 Definitions
    - 1. Corrosive Environment
      - a. Commentary – Revision/Relocation
    - 2. Immersion Pool
    - 3. Splash Pad
      - a. Commentary – Addition/Revision
  - ii. 680.4 Inspections After Installation
    - 1. Commentary – Addition
  - iii. 680.9 Overhead Conductor Clearances
    - 1. Power
    - 2. Commentary – Revision
  - iv. 680.11 Underground Wiring
    - 1. Underground Wiring
    - 2. Wiring Under Pools
    - 3. Minimum Cover Requirements
    - 4. Commentary – Revision
  - v. 680.14 Wiring Methods in Corrosive Environment
    - 1. Commentary – Revision/Relocation



- vi. 680.21(C) GFCI Protection
  - 1. Commentary – Addition/Revision
- vii. 680.21(D) Pool Pump Motor Replacement
  - 1. Commentary – Addition
- viii. 680.22(A)(5) Pool Equipment Room
  - 1. Commentary – Addition
- ix. 680.22(E) Other Equipment
  - 1. Commentary – Addition
- x. 680.23(B)(6) Servicing
  - 1. Commentary – Revision
- xi. 680.26(B) Bonded Parts
  - 1. Perimeter Surfaces
    - a. Commentary – Addition
- xii. 680.26(B)(5) Metal Fittings
  - 1. Commentary – Addition
- xiii. 680.59 GFCI Protection for Permanently Installed Nonsubmersible Pumps
  - 1. Commentary = Addition
- xiv. 680.80 General
  - 1. Commentary – Revision
- xv. 680.84 Switching Devices and Receptacles
  - 1. Commentary – Revision

#### **XVIII. 2020 NEC Article 645 and 680 Quiz**

#### **XIX. 2020 NEC Article 682 and 690 Part 1**

- a. Article 682 Natural and Artificially Made Bodies of Water
  - i. 682.15 Ground-Fault Protection
    - 1. Outlets
    - 2. Feeder and Branch Circuits on Piers
    - 3. Commentary – Revision
  - ii. 682.33(C) Bonding
    - 1. Bonded Parts
    - 2. Outdoor Service Equipment and Disconnects
    - 3. Walking Surfaces
    - 4. Commentary – Revision/Addition
- b. Article 690 Solar Photovoltaic (PV) Systems
  - i. 690.2 Definitions
    - 1. AC Module System
    - 2. Alternating-Current (ac) Module (Alternating-Current Photovoltaic Module) Bipolar Circuit
    - 3. Electronic Power Converter
    - 4. Grounded, Functionality
    - 5. Module
    - 6. Monopole Circuit
    - 7. Commentary – Revision

- ii. 690.4(B) Equipment
  - 1. Commentary – Revision
- iii. 690.8(A) Calculation of Maximum Circuit Current
  - 1. PV System Circuits
  - 2. Circuits Connected to the Input of Electronic Power Converters
  - 3. Commentary – Reorganization
- iv. 690.9(A) Circuits and Equipment
  - 1. Circuits Where Overcurrent Protection Not Required
  - 2. Circuits Where Overcurrent Protection Is Required on One End
  - 3. Other Circuits
  - 4. Commentary – Revision/Reorganization
- v. 690.12 Rapid Shutdown of PV Systems on Buildings
  - 1. Controlled Conductors
  - 2. Controlled Limits
    - a. Outside the Array Boundary
    - b. Inside the Array Boundary
  - 3. Initiation Device
  - 4. Equipment
    - a. Commentary – Revision
- vi. 690.13(A) Location
  - 1. Commentary – Addition
- vii. 690.13(E) Type of Disconnect
  - 1. Commentary – Revision/Deletion

## **XX. 2020 NEC Article 682 and 690 Part 1 Quiz**

### **XXI. 2020 NEC Article 682 and 690 Part 2**

- a. Article 690 Solar Photovoltaic (PV) Systems
  - i. 690.15 Disconnecting Means for Isolating Photovoltaic Equipment
    - 1. Location
    - 2. Isolating Device
    - 3. Equipment Disconnecting Means
    - 4. Type of Disconnecting Means
    - 5. Commentary – Revision
  - ii. 690.31 Wiring Methods
    - 1. Wiring Systems
    - 2. Table 690.31(A)(a) Correction Factors
    - 3. Table 690.31(A)(b) Ampacities of Insulated Conductors Rated Up to and Including 2000 Volts, 105°C Through 125°C (221°F Through 257°F), Not More Than Three Current-Carrying Conductors in Raceway, Cable, or Earth (Directly Buried), Based on Ambient Temperature of 30°C (86°F)
    - 4. Identification and Grouping
      - a. Identification
      - b. Grouping

- c. Cables
    - i. Single-Conductor Cable
    - ii. Cable Tray
    - iii. Multiconductor Jacked Cables
    - iv. Flexible Cords and cables Connected to Tracking PV Arrays
    - v. Flexible, Fine-Stranded Cables
    - vi. Small-Conductor Cables
  - d. Direct-Current Circuits on or in Buildings
    - i. Flexible Wiring Methods
    - ii. Marking and Labeling Required
  - e. Bipolar Photovoltaic Systems
  - f. Wiring Methods and Mounting Systems
    - i. Commentary – Revision
5. 690.33(C) Type
- a. Commentary – Revision
6. 690.41(B) Ground-Fault Protection
- a. Ground-Fault Detection
  - b. Faulted Circuits
  - c. Indication of Faults
  - d. Commentary – Revision
7. 690.51 Modules and AC Modules
- a. Commentary – Revision
8. 690.53 DC PV Circuits
- a. Commentary – Revision
9. 690.56(C) Buildings with Rapid Shutdown
- a. Buildings with More Than One Rapid Shutdown type
  - b. Rapid Shutdown Switch
  - c. Commentary – Revision

## **XXII. 2020 NEC Article 682 and 690 Part 2 Quiz**

### **XXIII. NFPA 70E (2018) Standard for Electrical Safety in the Workplace Part 1**

- a. Article 90 Introduction
  - i. 90.1 Purpose
  - ii. 90.2 Scope
    - 1. Covered
  - iii. 90.3 Standard Arrangement
- b. Chapter 1 Safety-Related Work Practices
  - i. 100 Definitions
    - 1. Scope
    - 2. Accessible (as applied to equipment)
    - 3. Accessible (as applied to writing methods)
    - 4. Accessible, Readily (Readily Accessible)
    - 5. Arc Flash Hazard

6. Arc Flash Suit
7. Boundary, Arc Flash
8. Incident Energy Analysis
- ii. 105.5 Responsibility
  1. Employer Responsibility
- iii. 110.1
  1. Risk Assessment Procedure
    - a. Elements off a Risk Assessment Procedure
  2. Job Safety Planning and Job Briefing
  3. Auditing
    - a. Lockout/Tagout Program and Procedure Audit
- iv. 110.2
  1. Lockout/Tagout Procedure Training
    - a. Initial Training
  2. Emergency Response Training
    - a. Contact Release
    - b. First Aid, Emergency Response, and Resuscitation
- v. 110.4
  1. Testing
  2. Rating
  3. Test Instruments and Equipment
    - a. Visual Inspection and Repair
- vi. 110.5 Portable Cord- and Plug-Connected Electric Equipment
  1. Handling and Storage
  2. Grounding-Type Equipment
- vii. 120.1 Lockout/Tagout Program
  1. Employer Responsibilities
- viii. 130.2 Electrically Safe Work Conditions
  1. Energized Work
    - a. Normal Operating Condition
- ix. 130.4 Shock Risk Assessment
  1. General
- x. 130.7 Personnel and Other Protective Equipment
  1. Personal Protective Equipment (PPE)
    - a. Clothing and Other Apparel Not Permitted
  2. Standards for Other Protective Equipment

#### **XXIV. NFPA 70E (2018) Standard for Electrical Safety in the Workplace Part 1 Quiz**

- XXV. NFPA 70E (2018) Standard for Electrical Safety in the Workplace Part 2
- a. Chapter 2 Safety-Related Maintenance Requirements
    - i. 205.1 Qualified Persons
    - ii. 205.3 General Maintenance Requirements
    - iii. 205.4 Overcurrent Protective Device
    - iv. 205.7 Guarding of Energized Conductors and Circuit Parts

- v. 205.10 Identification of Components
- vi. 205.13 Single and Multiple Conductors and Cables
- vii. 205.15 Overhead Line Clearances
- viii. 210.2 Area Enclosures
- ix. 210.3 Conductors
- x. 210.5 Productive Devices
- xi. 215.1 Covers for Wiring System Components
- xii. 215.2 Open Wiring Protection
- xiii. 215.3 Raceways and Cable Trays
- xiv. 225.1 Fuses
- xv. 225.2 Molded-Case Circuit Breakers
- xvi. 225.3 Circuit Breaker Testing After Electrical Faults
- xvii. 230.1 Terminal Boxes
- xxviii. 235.2 Maintenance Requirements for Hazardous (Classified) Locations
- xix. 240.1 Ventilation
- xx. 245.1 Maintenance Requirements for Portable Electric Tools and Equipment
- xxi. 240.1 Eye and Body Wash Apparatus
- xxii. 250.2
  - 1. Visual
  - 2. Testing
- xxiii. 250.3 Safety Grounding Equipment
  - 1. Visual
  - 2. Testing
  - 3. Grounding and Testing Devices
- xxiv. 250.4 Test Instruments

**XXVI. NFPA 70E (2018) Standard for Electrical Safety in the Workplace Part 2 Quiz**

- XXVII. NFPA 70E (2018) Standard for Electrical Safety in the Workplace Part 3
- a. Chapter 3 Safety Requirements for Special Equipment
    - i. 310.1 Scope
    - ii. 310.2 Definitions
      - 1. Battery Effect
      - 2. Safeguarding
    - iii. 310.3 Safety Training
      - 1. General
      - 2. Training Requirements
    - iv. 310.4
      - 1. Qualified Persons
        - a. Training
        - b. Qualified Persons
      - 2. Unqualified Persons
        - a. Training
        - b. In Cell Line Working Zone

- v. 310.5
  - 1. Personal Protective Equipment (PPE)
  - 2. Cranes and Hoists
- vi. 310.6
  - 1. Portable Electrical Equipment
  - 2. Welding Machines
- vii. 320.2 Definitions
  - 1. Authorized Personnel
  - 2. Battery
  - 3. Cell
  - 4. Electrolyte
  - 5. Nominal Voltage
  - 6. Pilot Cell
  - 7. Prospective Short-Circuit Current
  - 8. Valve-Regulated Lead Acid (VRLA) Cell
  - 9. Vented Cell
- viii. 320.3
  - 1. General Safety Hazards
    - a. Energy Thresholds
    - b. Battery Risk Assessment
    - c. Battery Room or Enclosures Requirements
      - i. Personnel Access to Energizes Batteries
      - ii. Illumination
- ix. 330.2
  - 1. Laser
  - 2. Laser Energy Source
  - 3. Laser Radiation
  - 4. Laser System
- x. 330.4
  - 1. Personnel to Be Trained
  - 2. Electrical Safety Training for Work on or with Lasers
- xi. 330.5 Safeguarding of Persons from Electrical Hazards Associated with Lasers and Laser System
  - 1. Temporary Guarding
  - 2. Work Requiring an Electrically Safe Work Condition
- xii. 330.6 Responsibility for Electrical Safety
- xiii. 340.2 Definitions
  - 1. Radiation Worker
- xiv. 350.1 Safety-Related Work Requirements: Research and Development Laboratories
  - 1. Scope
- xv. 350.2 Definition
  - 1. Competent Person
  - 2. Field Evaluated
  - 3. Laboratory

- 4. Research and Development (R&D)
- xvi. 350.3 Applications of Other Articles
- xvii. 350.4. Specific Measures and Controls for Personnel Safety
- xviii. 350.5 Listing Requirements
- xix. 350.6 Approval Requirements
- xx. 350.8 Custom Built, Unlisted Research Equipment >1000 V AC or DC
- xxi. 350.9 Energy Thresholds

**XXVIII. NFPA 70E (2018) Standard for Electrical Safety in the Workplace Part 3 Quiz**

**XXIX. NFPA 70E (2018) Standard for Electrical Safety in the Workplace Part 4**

- a. Chapter 4 Safety Requirements for Special Equipment
  - i. Informative Annex C Limits of Approach
    - 1. C.1 Preparation for Approach
    - 2. C.1.1 Unqualified Persons, Safe Approach Distance
    - 3. C.1.2.1-3 Qualified Persons, Safe Approach Distance
  - ii. Informative Annex D Incident Energy and Arc Flash Boundary Calculation
    - 1. D.1 Introduction
    - 2. D.3.1 Calculation of Incident Energy Exposure
  - iii. Informative Annex E Electrical Safety Program
    - 1. E.1 Typical Electrical Safety Program Principles
    - 2. E.3 Typical Electrical Safety Program Procedures
  - iv. Informative Annex F Risk Assessment and Risk Control
    - 1. F.1.1 Occupational health and Safety (OHS) Risk Management
    - 2. F.2 Relationship to Occupational Health and Safety Management System (OHSMS)
  - v. Informative Annex G Sample Lockout / Tagout Program
    - 1. 9.0 Complex Lockout / Tagout
  - vi. Informative Annex K General Categories of Electrical Hazards
    - 1. K.2 Eclectic Shock
    - 2. K.4 Arc Blast
  - vii. Informative Annex M Layering Clothing and Total System Arc Rating
    - 1. M.1 Layering of Protective Clothing
    - 2. M.2 Layering Using Arc-Rated Clothing over Natural Fiber Clothing Underlayers
  - viii. Informative Annex O Safety-Related Design Requirements
    - 1. O.2.4 Additional Safety-by-Design Methods

**XXX. NFPA 70E (2018) Standard for Electrical Safety in the Workplace Part 4 Quiz**