



Analysis of Changes 2023 NEC Part 3

Course Description, Performance Objectives and Timed Agenda of the Course Outline (4 Continuing Education Hours)

Course Description

This online course is an extensive and popular program analyzing the major changes to the National Electrical Code (*NEC*) for the 2023 cycle. Members of the eighteen *NEC* code-making panels contributed to the development of the authoritative text used in this online course.

The course covers more than 70 of the most significant code changes in Article 518 through Chapter 9. Specifically, the course covers code changes related to special occupancies, special equipment, special conditions, communications systems, tables and informative annexes.

Performance Objectives

Upon successful completion of this course, the participant will be able to:

- Describe changes to assembly occupancies and agricultural buildings
- Recognize new mobile home service equipment and recreational vehicle code changes
- Identify changes to requirements in marinas and boatyards
- Discuss changes to electric signs and outdoor lighting as well as elevators and lifts
- Explain changes related to electric vehicle charging systems and welders
- Summarize code changes to industrial machinery and swimming pools
- Understand code changes in spas, hot tubs and splash pads
- Describe changes to photovoltaic (PV) circuits, transformers and other equipment
- Identify code changes related to emergency systems and legally required standby systems
- Discuss code changes related to interconnected electric power production systems, power-limited circuits, and fire alarm systems
- Explain changes related to communications systems as well as code tables and annexes

Timed Agenda of the Course Outline

(4 Continuing Education Hours)

Introduction (10 minutes)

(0:00 - 9:39)

- Welcome to Pace (0:00) (18 secs)
- Interface Instructions (0:18) (25 secs)
- Interface Instructions (0:43) (1 min 14 secs)

- closedbook (1:58) (49 secs)
- openbook (2:47) (28 secs)
- Ask Instructor (3:15) (36 secs)
- Course Forward (3:52) (1 min 34 secs)
- Contributors 3 (5:26) (36 secs)
- Character Illustrations (6:02) (38 secs)
- closedSyllabus (6:42) (32 secs)
- opensyllabus (7:14) (32 secs)
- Closed Course Description (7:48) (57 secs)
- Open Course Description (8:45) (53 secs)

Module 1

(9:39 - 37:00)

Lesson 1 - Articles 518 through 555.6

(27 minutes)

- Performance Objectives (9:39) (20 secs)
- 518.2 Casinos and Gaming Facilities (9:59) (58 secs)
- 518.4 Power over Ethernet (10:58) (1 min 30 secs)
- 518.5 Supply (12:27) (1 min 23 secs)
- Article 530 Motion Picture and Television Studios and Remote Locations (13:51) (1 min 49 secs)
- 547.26 Physical Protection (Agricultural Buildings) (15:40) (1 min 07 secs)
- 547.44 Equipotential Planes and Bonding of Equipotential Planes (16:48) (1 min 31 secs)
- Expert Commentary - 547.44 Equipotential Planes (18:19) (3 mins)
- 550.32 Service Equipment (21:56) (52 secs)
- 551.3 Electrical Datum Plane Distances (22:49) (1 min 12 secs)
- 551.40(D) Loss of Ground Device (24:01) (1 min 17 secs)
- Expert Commentary - 551.40(D) Loss of Ground Device (25:18) (4 mins)
- 555.4 Location of Service Equipment (29:15) (1 min 24 secs)
- Expert Commentary - 555.4 Location of Service Equipment (30:39) (3 mins)
- 555.6 Load Calculations for Service and Feeder Conductors (33:58) (1 min 27 secs)
- Expert Commentary - 555.6 Load Calculations (35:25) (2 mins)
- Lesson Test (36:51) (00 secs)

Module 2

(37:00 - 69:42)

Lesson 2 - Articles 555.14 through 620

(33 minutes)

- Performance Objectives (37:00) (20 secs)
- 555.14 Equipotential Planes and Bonding of Equipotential Planes (1 min 16 secs)
- Expert Commentary - 555.14 Equipotential Planes (38:37) (00 secs)
- 555.15 Replacement of Equipment at Marinas, Boatyards, Floating Buildings, and Commercial and Noncommercial Docking Facilities (41:56) (1 min 38 secs)
- Expert Commentary - 555.15 Replacement (43:34) (00 secs)
- 555.35(E) Leakage Current Measurement Device (46:47) (1 min 31 secs)

- Expert Commentary - 555.35(D) Leakage Current Measurement Device (48:17) (00 secs)
- 555.36(C) Emergency Electrical Disconnect (51:52) (1 min 40 secs)
- Expert Commentary - 555.36(C) Emergency Disconnect (53:33) (00 secs)
- 555.38 Luminaires (57:01) (1 min 07 secs)
- Expert Commentary - 555.38 Luminaires (58:07) (00 secs)
- 590.4(F) Lamp Protection (60:31) (59 secs)
- 600.5(A) Time Clocks and Similar Devices (61:31) (1 min 55 secs)
- 600.35 Retrofit Kits (63:26) (1 min 17 secs)
- 620.12(A) Traveling Cables (64:43) (1 min 24 secs)
- 620.22(A) Car Light Receptacles, Auxiliary Lighting, and Ventilation (66:07) (1 min 18 secs)
- 620.36 Different Systems in One Raceway or Traveling Cable (67:25) (1 min 19 secs)
- 620.51(A) Type. Ex. No. 2 Stairway Chair Lift (68:45) (54 secs)
- Lesson Test (69:39) (00 secs)

Module 3

(69:42 - 98:00)

Lesson 3 - Articles 625 through 680.12

(28 minutes)

- Performance Objectives (69:42) (20 secs)
- 625.6 Charging/Transfer Equipment (70:02) (53 secs)
- Expert Commentary - 625.6 Listed (70:56) (00 secs)
- 625.44(A) Portable Electric Vehicle Supply Equipment (73:26) (1 min 18 secs)
- Expert Commentary - 625.44 Equipment Connection (74:45) (00 secs)
- 625.49 Island Mode (75:48) (1 min 28 secs)
- Expert Commentary - 625.49 Island Mode (77:16) (00 secs)
- 630.8 Electric Welders (80:08) (1 min 26 secs)
- 646.19 Entrance to and Egress from Working Space (81:35) (1 min 00 secs)
- 670.1 Industrial Machinery (82:35) (1 min 02 secs)
- Article 680 Swimming Pools, Fountains, and Similar Installations (83:37) (1 min 08 secs)
- 680.5 GFCI and SPGFCI Protection (84:46) (3 mins 13 secs)
- Expert Commentary - 680.5 SPGFCI (87:59) (00 secs)
- 680.9(A) Wiring in Raceways (91:40) (48 secs)
- 680.10 Pool Water Temperature Conditioning Equipment (92:27) (1 min 10 secs)
- 680.21(D) Pool Pump Motor Replacement (93:38) (1 min 06 secs)
- Expert Commentary - 680.21(D) Pool Pump Motor Replacement (94:44) (00 secs)
- 680.12 Equipment Rooms, Vaults, and Pits (96:44) (1 min 13 secs)
- Lesson Test (97:57) (00 secs)

Module 4

(98:00 - 131.47)

Lesson 4 - Articles 680.23 through 690

(34 minutes)

- Performance Objectives (98:00) (21 secs)

- 680.23(B)(2)(a) Forming Shell (Metal Conduit) (98:21) (1 min 10 secs)
- 680.32 GFCI and SPGFCI Protection (99:31) (1 min 31 secs)
- Expert Commentary - 680.32 SPGFCI (101:05) (00 secs)
- 680.41(A) Emergency Switch for Spas and Hot Tubs (103:07) (53 secs)
- 680.44 Spa and Hot Tub Installations (104:00) (1 min 19 secs)
- Expert Commentary - 680.44 SPGFCI (105:20) (00 secs)
- 680.54(C) Equipotential Bonding of Splash Pads (107:12) (1 min 03 secs)
- Expert Commentary - 680.54 Grounding and Bonding (108:15) (00 secs)
- Article 690 Solar Photovoltaic (PV) Systems (111:11) (1 min 02 secs)
- 690.1 PV System dc Circuit Conductors (112:14) (59 secs)
- Expert Commentary - 690 PV Systems (113:13) (00 secs)
- 690.4(G) PV Equipment Floating on Bodies of Water (115:20) (1 min 26 secs)
- 690.9(D) Transformers (116:46) (1 min 17 secs)
- Expert Commentary - 690.9 Transformer Overcurrent Protection (118:03) (00 secs)
- 690.12 Rapid Shutdown Requirements (121:02) (1 min 04 secs)
- 690.12(B)(2) Inside the Array Boundary (122:06) (1 min 05 secs)
- 690.15 Disconnecting Means for Isolating Photovoltaic Equipment (123:11) (1 min 19 secs)
- Expert Commentary - 690.15 Disconnecting Means (124:31) (00 secs)
- 690.31(B) Conductors of Different Systems (128:51) (1 min 24 secs)
- 690.31(B)(1) Conductors of Different Systems (130:14) (1 min 30 secs)
- Lesson Test (131:44) (00 secs)

Module 5

(131:47 - 164:49)

Lesson 5 - Articles 700 and 701

(33 minutes)

- Performance Objective (131:47) (16 secs)
- 700.2, 701.2, 702.2, and 708.2 Reconditioned Equipment (132:03) (1 min 22 secs)
- 700.3(F) Temporary Source of Power for Maintenance or Repair of the Alternate Source of Power (133:26) (2 mins 29 secs)
- Expert Commentary - 700.3(F) Temporary Source (135:55) (00 secs)
- 700.5(D) Redundant Transfer Equipment (139:04) (1 min 27 secs)
- 700.11(C) Wiring, Class 2 Powered Emergency Lighting Systems (140:32) (3 mins 00 secs)
- 700.12(C) Supply Duration (143:32) (1 min 33 secs)
- 700.12(E) (145:07) (2 mins 14 secs)
- 700.12(G) Microgrid Systems (147:21) (49 secs)
- 701.4(C) Load Management (148:11) (1 min 00 secs)
- Expert Commentary - 701.4(C) Load Management (149:11) (00 secs)
- 701.4(D) Parallel Operation (150:49) (1 min 42 secs)
- Expert Commentary - 701.4(D) Parallel Operation (152:31) (00 secs)
- 701.10 Wiring Legally Required Standby Systems (155:41) (1 min 33 secs)
- 701.12(C) Supply Duration (157:14) (1 min 38 secs)
- Expert Commentary - 705.11 Supply Side Connection (158:53) (00 secs)

- 705.11 Source Connections to a Service (163:17) (1 min 29 secs)
- Lesson Test (164:46) (00 secs)

Module 6

(164:49 - 188:20)

Lesson 6 - Article 705 through Chapter 9

(23 minutes)

- Performance Objectives (164:49) (24 secs)
- 705.13 Energy Management Systems (EMS) (165:13) (39 secs)
- Expert Commentary - 705.13 EMS (165:52) (2 min 39 secs)
- 705.20 Source Disconnecting Means (167:02) (45 secs)
- Expert Commentary - 705.20 Source Disconnecting Means (167:47) (00 secs)
- 705.30(F) Transformers (170:16) (1 min 23 secs)
- Expert Commentary - 705.30(F) Transformers (171:39) (00 secs)
- 705.50 System Operation (173:53) (54 secs)
- 706.7 Commissioning and Maintenance (Energy Storage Systems) (174:47) (1 min 49 secs)
- Article 722 Cables for Power-Limited Circuits, Fault-Managed Power (Class 4) Circuits (176:36) (1 min 05 secs)
- 725.144 Bundling of Cables Transmitting Power and Data (177:42) (1 min 02 secs)
- Article 726 Class 4 (CL4) Power Systems (178:44) (1 min 49 secs)
- Article 760 Fire Alarm Systems (180:33) (55 secs)
- 800.179 Wires and Cables (181:28) (58 secs)
- 805.170 Primary and Secondary Protectors. (182:26) (1 min 32 secs)
- 840.160 Powering Circuits (183:58) (54 secs)
- Chapter 9 Table 13 Equipment Suitable for Hazardous (Classified) Locations (184:52) (1 min 22 secs)
- Annex A Product Safety Standards (186:14) (1 min 08 secs)
- Annex E Fire Resistance Construction (187:23) (57 secs)
- Lesson Test (188:20) (00 secs)

Timeline Adjustments:

Question Totals -

- 40 formative questions @ 30 seconds each: 20 minutes

Total Course Time:

208 minutes