

VIDEO USER GUIDE

2023 Journeyman Comprehensive Video Training Library

Total Play Time: [99:58:02]



The best way to understand the concepts in this program is to use the videos along with the textbook. The videos contain explanations and commentary from a panel of experts that expand on the concepts in the textbook and help you understand the application of the topics in real-world situations. Whether you're a visual or an auditory learner, watching these videos will enhance your knowledge and understanding.

- Watch the videos sequentially and follow along with the textbook. Stop and review any section that you don't understand.
- Pay special attention to the detailed instructional graphics.
- Work through the questions in your textbook to test your comprehension.

SCAN



TO ACCESS
YOUR VIDEOS



Understanding Electrical Theory

For NEC® Applications



VIDEO USER GUIDE

Play Time Total 23:04:17

	<u>Play Time</u>	<u>Book Page #</u>
Introduction	[0:24:54]	
CHAPTER 1 – ELECTRICAL FUNDAMENTALS	[2:37:58]	page 1
Unit 1 – Atomic Structure	[0:54:44]	
Unit 2 – Electron Theory and Chemical Bonding	[0:42:12]	
Unit 3 – Electrical Circuits and Power Sources	[0:36:21]	
Unit 4 – The Electrical System.....	[0:24:19]	
CHAPTER 2 – USES AND DANGERS OF ELECTRICITY	[2:18:39]	page 33
Unit 5 – Uses of Electricity	[1:04:45]	
Unit 6 - Dangers of Electricity	[1:13:27]	
CHAPTER 3 – MAGNETISM AND ELECTROMAGNETISM	[1:22:20]	page 55
Unit 7 - Basics of Magnetism	[0:24:28]	
Unit 8 – Electromagnetism	[0:30:47]	
Unit 9 - Uses of Electromagnetism	[0:26:07]	
CHAPTER 4 – MATHEMATICS	[0:59:57]	page 71
Unit 10 – Basic Math.....	[0:42:55]	
Unit 11 - Trigonometry	[0:15:54]	
CHAPTER 5 – OHM’S LAW AND WATT’S LAW	[1:01:03]	page 91
Unit 12 – Ohm’s Law	[0:41:29]	
Unit 13 – Watt’s Law.....	[0:19:19]	
CHAPTER 6 – ELECTRICAL CIRCUIT TYPES.....	[1:37:37]	page 107
Unit 14 - Series Circuits	[0:41:22]	
Unit 15 - Parallel Circuits	[0:40:30]	
Unit 16 - Series-Parallel Circuits	[0:14:01]	

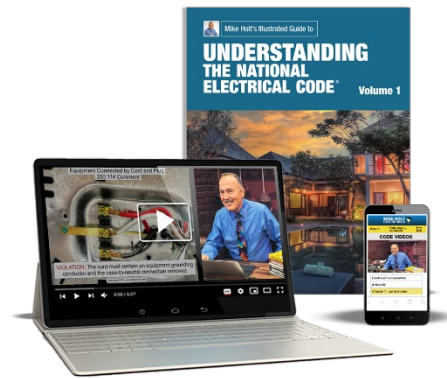
CHAPTER 7 – ALTERNATING CURRENT	[3:36:14].....	page 137
Unit 17 - Alternating Current Fundamentals.....	[1:39:07]	
Unit 18 – Inductance.....	[0:30:48]	
Unit 19 – Capacitance	[0:33:14]	
Unit 20 – True Power, Power Factor, and Apparent Power	[0:52:02]	
CHAPTER 8 – MOTORS, GENERATORS, RELAYS, AND TRANSFORMERS	[3:10:08].....	page 177
Unit 21 - Motors	[0:57:20]	
Unit 22 – Generators	[0:34:26]	
Unit 23 – Relays.....	[0:12:42]	
Unit 24 – Transformers.....	[1:25:23]	
CHAPTER 9 – PROTECTIVE DEVICES.....	[4:15:56].....	page 215
Unit 25 – Overcurrent Protection.....	[2:51:48]	
Unit 26 – GFCIs, GFPEs, AFCIs, and SPDs.....	[1:23:08]	
CHAPTER 10 – GENERAL KNOWLEDGE	[1:45:08].....	page 241
Unit 27 – Wire Resistance and Voltage Drop.....	[0:40:28]	
Unit 28 – Multiwire Circuits	[0:47:18]	
Unit 29 – The Formula Wheel	[0:16:26]	

Understanding the NEC— Volume 1

Based on the 2023 NEC®

VIDEO USER GUIDE

Play Time Total 30:30:33



	<u>Play Time</u>	<u>Book Page #</u>
INTRODUCTION.....	[0:07:08]	
ARTICLE 90 – INTRODUCTION TO THE NEC.....	[1:31:14]	page 7
CHAPTER 1 – GENERAL RULES	[3:18:57]	page 17
Article 100—Definitions	[0:06:54]	
Article 110—General Requirements for Electrical Installations.....	[3:11:29]	
CHAPTER 2—WIRING AND PROTECTION	[8:08:05]	page 101
Article 200—Use and Identification of Grounded Conductors.....	[0:45:53]	
Article 210—Branch Circuits	[2:36:47]	
Article 215—Feeders	[0:20:34]	
Article 220—Branch-Circuit, Feeder, and Service Load Calculations	[0:02:26]	
Article 225—Outside Branch Circuits and Feeders	[0:39:03]	
Article 230—Services.....	[2:24:57]	
Article 240—Overcurrent Protection	[0:44:17]	
Article 242—Overvoltage Protection.....	[0:26:04]	
Article 250—Grounding and Bonding.....	[0:04:40]	
CHAPTER 3—WIRING METHODS AND MATERIALS.....	[11:03:37]	page 335
Article 300—General Requirements for Wiring Methods and Materials	[2:29:49]	
Article 310—Conductors for General Wiring.....	[0:49:35]	
Article 312—Article 312—Cabinets, Cutout Boxes, and Meter Enclosure.....	[1:10:06]	
Article 314—Article 314—Boxes, Conduit Bodies, and Handhole Enclosures.....	[1:24:27]	



	<u>Play Time</u>	<u>Book Page #</u>
Article 320—Armored Cable (Type AC)	[0:18:50]	
Article 330—Metal-Clad Cable (Type MC).....	[0:22:13]	
Article 334—Nonmetallic-Sheathed Cable:		
Types NM and NMC	[0:37:37]	
Article 336—Power and Control Tray Cable (Type TC)	[0:08:03]	
Article 338—Service-Entrance Cable (Types SE and USE)	[0:06:54]	
Article 340—Underground Feeder and Branch-		
Circuit Cable (Type UF)	[0:05:24]	
Article 342—Intermediate Metal Conduit (IMC)	[0:23:39]	
Article 344—Rigid Metal Conduit (RMC).....	[0:02:15]	
Article 348—Flexible Metal Conduit (FMC)	[0:15:47]	
Article 350—Liquidtight Flexible Metal Conduit (LFMC)	[0:13:05]	
Article 352—Rigid Polyvinyl Chloride Conduit (PVC).....	[0:25:13]	
Article 356—Liquidtight Flexible Nonmetallic		
Conduit (LFNC).....	[0:22:00]	
Article 358—Electrical Metallic Tubing (EMT).....	[0:40:14]	
Article 362—Electrical Nonmetallic Tubing (ENT)	[0:15:02]	
Article 376—Metal Wireways	[0:21:02]	
Article 380—Multioutlet Assemblies	[0:05:28]	
Article 386—Surface Metal Raceways	[0:08:48]	
Article 392—Cable Trays	[0:18:06]	
CHAPTER 4—EQUIPMENT FOR GENERAL USE.....	[6:21:32]	 page 531
Article 400—Flexible Cords.....	[0:43:11]	
Article 402—Fixture Wires.....	[0:09:00]	
Article 404—Switches.....	[0:55:28]	
Article 406—Receptacles, Attachment Plugs, and		
Flanged Inlets.....	[0:57:38]	
Article 408—Switchboards, Switchgear, and Panelboards.....	[0:18:14]	
Article 410—Luminaires	[1:20:54]	
Article 411—Low-Voltage Lighting	[0:13:37]	
Article 422—Appliances.....	[0:20:13]	
Article 424—Fixed Electric Space-Heating Equipment	[0:09:05]	
Article 430—Motor Circuits, Controllers, and		
Adjustable-Speed Drives.....	[0:33:50]	
Article 440—Air-Conditioning and Refrigerating Equipment..	[0:11:51]	
Article 445—Generators	[0:02:17]	
Article 450—Article 450—Transformers	[0:06:26]	
Article 480—Stationary Standby Batteries	[0:05:36]	



Bonding & Grounding

Based on the 2023 NEC®

VIDEO USER GUIDE

Play Time Total 14:02:57



2023 Bonding and Grounding – Video Play Time

	<u>Play Time</u>	<u>Book Page #</u>
UNDERSTANDING BONDING AND GROUNDING	[0:42:01]	
CHAPTER 2 – WIRING AND PROTECTION	[8:02:45]	page 123
Article 250—Grounding and Bonding - 250.1 to 250.70.....	[4:36:21]	
Article 250—Grounding and Bonding - 250.80 TO 250.148	[3:26:24]	
CHAPTER 3—WIRING METHODS AND MATERIALS [0:26:32]		page 221
Article 300—General Requirements for Wiring Methods and Materials.....	[0:10:48]	
Article 314— Boxes, Conduit Bodies, and Handhole Enclosures.....	[0:02:02]	
Article 320—Armored Cable (Type AC).....	[0:00:28]	
Article 330—Metal-Clad Cable (Type MC)	[0:00:42]	
Article 334—Nonmetallic-Sheathed Cable (Type NM).....	[0:01:23]	
Article 342—Intermediate Metal Conduit (IMC)	[0:00:18]	
Article 344—Rigid Metal Conduit (RMC).....	[0:00:04]	
Article 350—Liquidtight Flexible Metal Conduit (Type LFMC).....	[0:00:52]	
Article 352—Rigid Polyvinyl Chloride Conduit (Type PVC).....	[0:02:12]	
Article 356—Liquidtight Flexible Nonmetallic Conduit (Type LFNC)	[0:04:49]	
Article 358—Electrical Metallic Tubing (Type EMT).....	[0:00:07]	
Article 362—Electrical Nonmetallic Tubing (Type ENT)	[0:00:21]	
Article 376—Metal Wireways	[0:00:11]	
Article 386—Surface Metal Raceways	[0:00:40]	
Article 392—Cable Trays.....	[0:01:35]	

	<u>Play Time</u>	<u>Book Page #</u>
CHAPTER 4—EQUIPMENT FOR GENERAL USE	[0:29:38]	page 275
Article 404—Switches.....	[0:05:09]	
Article 406— Receptacles, Attachment Plugs, and Flanged Inlets.....	[0:11:59]	
Article 408—Switchboards and Panelboards	[0:02:26]	
Article 410—Luminaires	[0:05:52]	
Article 440—Air-Conditioning Equipment	[0:00:39]	
Article 450—Transformers.....	[0:03:33]	
CHAPTER 5—SPECIAL OCCUPANCIES.....	[0:50:45]	page 299
Article 501—Class I Hazardous (Classified) Locations.....	[0:10:21]	
Article 502—Class II Hazardous (Classified) Locations	[0:04:43]	
Article 517—Health Care Facilities	[0:19:08]	
Article 547—Agricultural Buildings.....	[0:10:11]	
Article 555—Marinas, Boatyards, and Docking Facilities	[0:06:22]	
CHAPTER 6—SPECIAL EQUIPMENT	[1:39:53]	page 323
Article 600—Electric Signs.....	[0:03:18]	
Article 645—Information Technology Equipment (ITE)	[0:08:50]	
Article 680—Swimming Pools, Spas, Hot Tubs, Fountains, and Similar Installations	[1:03:38]	
Article 690—Solar Photovoltaic (PV) Systems	[0:24:07]	
CHAPTER 8—COMMUNICATIONS SYSTEMS	[0:06:37]	page 357
Article 810—Antenna Systems.....	[0:06:34]	
ADVANCED TOPICS.....	[2:20:17]	
Objectionable Current Prevention [250.6]	[0:06:11]	
Grounding and Bonding Service Equipment [250.24]	[0:39:18]	
Transformer Separately Derived Systems [250.30].....	[0:35:40]	
Generator Separately Derived Systems [250.30]	[0:19:30]	
Buildings Supplied by a Feeder [250.32]	[0:09:54]	
Impedance Grounded Systems [250.36]	[0:29:44]	

Understanding the NEC Volume 2

Based on the 2023 NEC®

VIDEO USER GUIDE

Play Time Total 14:09:09



2020 Understanding the NEC Volume 2 Video Play Time

	<u>Play Time</u>	<u>Book Page #</u>
CHAPTER 5 – SPECIAL OCCUPANCIES	[5:43:33]	page 125
Article 500—Hazardous (Classified) Locations.....	[0:42:28]	
Article 501—Class I Hazardous (Classified) Locations.....	[1:20:53]	
Article 502—Class II Hazardous (Classified) Locations	[0:01:23]	
Article 511—Commercial Garages, Repair and Storage.....	[0:27:00]	
Article 517—Health Care Facilities	[0:39:32]	
Article 518—Assembly Occupancies	[0:05:50]	
Article 547—Agricultural Buildings.....	[0:22:48]	
Article 555—Marinas, Boatyards, and Docking Facilities	[1:22:25]	
Article 590—Temporary Installations	[0:31:21]	
CHAPTER 6 – SPECIAL EQUIPMENT	[4:45:56]	page 229
Article 600—Electric Signs.....	[0:12:59]	
Article 604—Manufactured Wiring Systems	[0:04:57]	
Article 625—Electric Vehicle Power Transfer System.....	[0:52:11]	
Article 680—Swimming Pools, Hot Tubs, and Fountains	[3:00:39]	
Article 690—Solar Photovoltaic (PV) Systems.....	[0:01:37]	
Article 695—Fire Pumps	[0:32:14]	
CHAPTER 7 – SPECIAL CONDITIONS.....	[3:20:19]	page 385
Article 700—Emergency Systems	[1:18:01]	
Article 701—Legally Required Standby Systems	[0:05:10]	
Article 702—Optional Standby Systems	[0:00:50]	
Article 705—Interconnected Electric Power Production		
Sources.....	[0:00:56]	
Article 706—Energy Storage Systems.....	[0:00:25]	

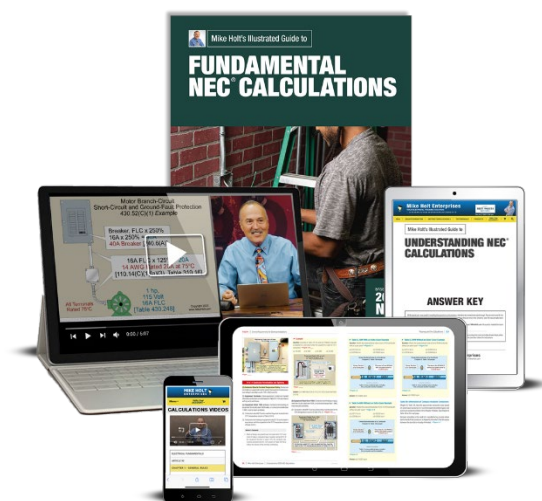
	<u>Play Time</u>	<u>Book Page #</u>
Article 710—Stand-Alone Systems.....	[0:00:19]	
Article 722—Cables for Power-Limited Circuits.....	[0:37:55]	
Article 724—Class 1 Power-Limited Circuits	[0:14:43]	
Article 725—Remote-Control, Signaling, and Power-Limited Circuits	[0:36:13]	
Article 760—Fire Alarm Systems.....	[0:21:31]	
Article 770—Optical Fiber Cables.....	[0:02:38]	
CHAPTER 8 – COMMUNICATIONS SYSTEMS.....	[0:19:21]	 page 503
Article 800—General Requirements for Communications Systems	[0:03:48]	
Article 810—Radio and Television Antenna Equipment	[0:10:59]	

Fundamental NEC Calculations

Based on the 2023 NEC®

VIDEO USER GUIDE

Play Time Total 05:15:39



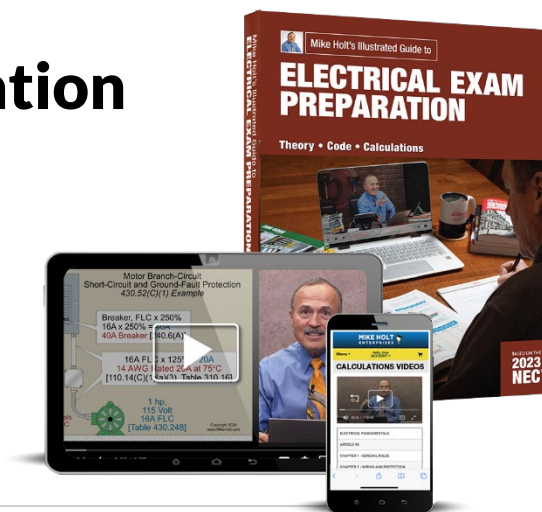
	<u>Play Time</u>	<u>Book Page #</u>
CHAPTER 1—GENERAL RULES.....	[0:17:22].....	page 19
Article 110—General Requirements for Electrical Installations.....	[0:17:15]	
CHAPTER 2—WIRING AND PROTECTION.....	[1:50:20].....	page 45
Article 210—Branch Circuits.....	[0:39:38]	
Article 215—Feeders.....	[0:10:29]	
Article 220—Branch-Circuit, Feeder, and Service Load Calculations	[0:09:51]	
Article 230—Services	[0:00:58]	
Article 240—Overcurrent Protection.....	[0:49:24]	
CHAPTER 3—WIRING METHODS AND MATERIALS	[1:30:15].....	page 97
Article 310—Conductors for General Wiring	[1:10:55]	
Article 334—Nonmetallic-Sheathed Cable (Type NM)	[0:06:30]	
Article 376—Metal Wireways.....	[0:12:50]	
CHAPTER 4—EQUIPMENT FOR GENERAL USE	[1:22:21].....	page 129
Article 422—Appliances	[0:01:44]	
Article 424—Fixed Electric Space-Heating Equipment.....	[0:04:28]	
Article 430—Motor Circuits, Controllers, and Adjustable-Speed Drives ..	[0:48:07]	
Article 440—Air-Conditioning Equipment.....	[0:07:50]	
Article 445—Generators.....	[0:02:39]	
Article 450—Transformers	[0:17:33]	
CHAPTER 6—SPECIAL EQUIPMENT.....	[0:15:01].....	page 155
Article 625—Electric Vehicle Power Transfer System	[0:15:01]	

Electrical Exam Preparation

Based on the 2023 NEC®

Journeyman Calculations VIDEO USER GUIDE

Play Time Total 12:46:49



2023 Journeyman Electrical Exam Preparation Video Play Time

	<u>Play Time</u>	<u>Book Page #</u>
INTRODUCTION.....	[0:08:17]	
MODULE III – NEC CALCULATIONS		page 239
Unit 1—Raceway Calculations	[2:23:35]	page 241
Unit 2—Box Calculations	[1:20:31]	page 265
Part A—Outlet Box Sizing.....	[0:46:14]	
Part B—Pull and Junction Boxes.....	[0:26:04]	
Unit 3—Conductor Sizing and Protection Calculations.....	[2:27:42]	page 283
Part A—Conductor Insulation, Terminals, and Overcurrent Protection.....	[0:42:36]	
Part B—Conductor Ampacity and Protection	[1:43:53]	
Unit 4—Motor, Air-Conditioning, and Transformer Calculations.....	[2:50:14]	page 315
Part A—Motor Calculations.....	[2:20:56]	
Part B—Air-Conditioning Calculations	[0:11:44]	
Part C—Transformers	[0:16:33]	
Unit 5—Voltage-Drop Calculations	[1:02:53]	page 351
Part A—Conductor Resistance Calculations.....	[0:22:50]	
Part B—Voltage-Drop Calculations.....	[0:38:33]	
Unit 6—Dwelling Unit Calculations	[2:33:37]	page 369
Part A—Optional Method Load Calculations [Article 220, Part IV]	[0:25:29]	
Part B—Standard Method Load Calculations [Article 220, Part III]	[1:05:10]	
Part C—Neutral Load Calculations.....	[1:01:30]	