

Core Curriculum

3rd Session Syllabus

Unnamed



Core Curriculum: Course Selection Per Session

3rd Session Core		
	Applied Grounding and Bonding, Based on the 2023 NEC - CML	5
	Code, Standards, and Practices 4, Based on the 2023 NEC - CML	1.5
	Code, Standards, and Practices 5, Based on the 2023 NEC - CML	2
	Lightning Protection - CML	1
	Physical Intrusion Detection Systems and Electronic Access Control - CML	3
	Motors for Electricians - CML	4
	Motor Control for Electricians - CML	7
	Motor Code Calculations, Based on the 2023 NEC - CML	1
	Torque for the Electrical Industry - CML	1
	Rigging for the Electrical Industry - CML	3.5
	Construction Documentation - CML	3.5
	Preparing for Leadership: Personal Qualities - 2nd Ed.	2

Core Curriculum: 3rd Session Core Courses

	Credits	Page	Date
Applied Grounding and Bonding, Based on the 2023 NEC - CML			
J210LM.N1	5.0	1	
Code, Standards, and Practices 4, Based on the 2023 NEC - CML			
J234LM.N	1.5	2	
Code, Standards, and Practices 5, Based on the 2023 NEC - CML			
J235LM.N	2.0	3	
Lightning Protection - CML			
J276LM.K	1.0	3	
Physical Intrusion Detection Systems and Electronic Access Control - CML			
J146LM.B	3.0	4	
Motors for Electricians - CML			
J206LM.K1	4.0	4	
Motor Control for Electricians - CML			
J209LM.I1	7.0	5	
Motor Code Calculations, Based on the 2023 NEC - CML			
J227LM.N5	1.0	6	
Torque for the Electrical Industry - CML			
J242LM.A	1.0	7	
Rigging for the Electrical Industry - CML			
J241LM.K1	3.5	7	
Construction Documentation - CML			
J244LM.J2	3.5	8	

Core Curriculum: 3rd Session Core Courses

	Credits	Page	Date
Preparing for Leadership: Personal Qualities - 2nd Ed.			
J900LM.A	2.0	9	

Core Curriculum: Curriculum Compass

Applied Grounding and Bonding, Based on the 2023 NEC - CML

Item Code: J210LM.N1

Core Curriculum Session: 3

Core Credits

5.0

Course Prerequisite(s): AC Theory, Level II/III

Other Prerequisites: None

Required Material(s):

- ***Applied Grounding and Bonding Textbook (S36823)***
- ***National Electrical Code - 2023 (S1150)***

- Lesson 1 Introduction to Grounding
- Lesson 2 Grounding Electrodes and the Grounding Electrode System
- Lesson 3 Grounding Requirements for Services and Grounded Conductors
- Lesson 4 Grounding Electrode Conductors
- Lesson 5 Bonding Requirements
- Lesson 6 Equipment Grounding Conductors
- Lesson 7 Grounding Electrical Equipment
- Lesson 8 Isolated/Insulated Grounding Circuits and Receptacles
- Lesson 9 Grounding at Separate Buildings or Structures
- Lesson 10 Grounding Electrical Systems
- Lesson 11 Grounding and Bonding for Separately Derived Systems
- Lesson 12 Grounding and Bonding for Special Occupancies
- Lesson 13 Grounding and Bonding for Special Equipment
- Lesson 14 Grounding and Bonding for Special Systems

Core Curriculum: Curriculum Compass

Code, Standards, and Practices 4, Based on the 2023 NEC - CML

Item Code: J234LM.N

Core Curriculum Session: 3

Core Credits

1.5

Course Prerequisite(s): Code, Standards, and Practices 3

Other Prerequisites: None

Required Material(s):

• *National Electrical Code - 2023 (S1150)*

• *Electrical Systems Textbook (S1170)*

- Lesson 1 Special Occupancies
- Lesson 2 Electrical Equipment
- Lesson 3 Special Equipment
- Lesson 4 Introduction to Cable Tray Systems
- Lesson 5 Installing Surface Metal Raceway

Code, Standards, and Practices 5, Based on the 2023 NEC - CML

Item Code: J235LM.N

Core Curriculum Session: 3

Core Credits

2.0

Course Prerequisite(s): Code, Standards, and Practices 4

Other Prerequisites: None

Required Material(s):

• *National Electrical Code - 2023 (S1150)*

- Lesson 1 Installing Electrical Services
- Lesson 2 Swimming Pools, Fountains, and Similar Installations
- Lesson 3 Understanding Emergency and Standby Systems Installation Requirements
- Lesson 4 Over 1,000-Volt Installations
- Lesson 5 Remote-Control, Signaling, and Power-Limited Circuits

Core Curriculum: Curriculum Compass

Lightning Protection - CML

Item Code: J276LM.K

Core Curriculum Session: Advanced

Advanced Credits

1.0

Course Prerequisite(s): Grounding and Bonding, Level I

Other Prerequisites: None

Required Material(s):

- | | |
|----------|---|
| Lesson 1 | Introduction to Lightning Protection Systems |
| Lesson 2 | Ground Work |
| Lesson 3 | Down Conductors |
| Lesson 4 | Bonding Requirements and Potential Equalization |
| Lesson 5 | Rooftop Lightning Protection |
| Lesson 6 | Surge Protective Devices |
| Lesson 7 | Inspection and Maintenance |

Physical Intrusion Detection Systems and Electronic Access Control -

Item Code: J146LM.B

Core Curriculum Session: Advanced

Advanced Credits

3.0

Course Prerequisite(s): DC Theory, Level I/IV

Other Prerequisites: None

Required Material(s):

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|-----------|--|
| Lesson 1 | Introduction to Security and Threats |
| Lesson 2 | Fundamentals of Physical Intrusion Detection Systems |
| Lesson 3 | Physical Intrusion Detection System Components |
| Lesson 4 | Fundamentals of Electronic Access Control Systems |
| Lesson 5 | EAC Credentials and Controls |
| Lesson 6 | Portals, Electrified Hardware, and Power Supplies |
| Lesson 7 | Codes, Standards, and Compliance |
| Lesson 8 | Commissioning PIDS and EAC Systems |
| Lesson 9 | Advanced Topics in PIDS and EAC Systems |
| Lesson 10 | Evaluating, Maintaining, and Updating PIDS and EAC Systems |

Core Curriculum: Curriculum Compass

Motors for Electricians - CML

Item Code: J206LM.K1

Core Curriculum Session: 3

Core Credits

4.0

Course Prerequisite(s): Code, Standards, and Practices 3; ET3: AC Theory or AC II

Other Prerequisites: None

Required Material(s):

- ***Motors Textbook (S649)***

- Lesson 1 Magnetism and Induction Review
- Lesson 2 Motor Nameplates
- Lesson 3 AC Alternators
- Lesson 4 Three-Phase Motors
- Lesson 5 Motor Types
- Lesson 6 Single-Phase Motors
- Lesson 7 Motor Protection
- Lesson 8 DC Motors
- Lesson 9 Starting and Stopping Motors
- Lesson 10 Motor Alignment
- Lesson 11 Troubleshooting Motors
- Lesson 12 Resources
- Lesson 13 Support - Labs

Core Curriculum: Curriculum Compass

Motor Control for Electricians - CML

Item Code: J209LM.I1

Core Curriculum Session: 3

Core Credits

7.0

Course Prerequisite(s): Motors, Level I/II

Other Prerequisites: None

Required Material(s):

• ***Fundamentals of Motor Control (S547)***

- Lesson 1 Introduction to Motor Control and the Industry
- Lesson 2 Electrical Safety with Motor Controls
- Lesson 3 Symbols, Diagrams, Drawings, and Logic
- Lesson 4 Input and Output Devices
- Lesson 5 Solenoids and Control Relays
- Lesson 6 Control Transformers
- Lesson 7 Motor Control Centers, Contactors, and Motor Starters
- Lesson 8 Timing and Counting Devices
- Lesson 9 Solid-State Devices
- Lesson 10 Programmable Controllers
- Lesson 11 Motor Drives
- Lesson 12 Industrial Networks
- Lesson 13 System-Wide Troubleshooting
- Lesson 14 Resources
- Lesson 15 Support - Labs
- Lesson 16 REMOVED - 1-4-2024 - PRM

Core Curriculum: Curriculum Compass

Motor Code Calculations, Based on the 2023 NEC - CML

Item Code: J227LM.N5

Core Curriculum Session: 3

Core Credits

1.0

Course Prerequisite(s): Elect. Code Calc., Lvl I or FCC CML; Motors CML

Other Prerequisites: None

Required Material(s):

• *National Electrical Code - 2023 (S1150)*

• *Code Calculations Textbook - 2023 (S00823)*

- Lesson 1 General Rules and Part I of Article 430
- Lesson 2 Sizing Motor Branch-Circuit Conductors
- Lesson 3 Selecting Single Motor Branch-Circuit Short-Circuit and Ground-Fault Protection
- Lesson 4 Sizing Motor Overload Protection
- Lesson 5 Sizing Motor Branch-Circuit Disconnecting Means
- Lesson 6 Calculations for Multi-Load Branch Circuits and Feeders
- Lesson 7 Calculations for Air-Conditioning and Refrigeration Motors
- Lesson 8 Special Applications

Torque for the Electrical Industry - CML

Item Code: J242LM.A

Core Curriculum Session: 3

Core Credits

1.0

Course Prerequisite(s): None

Other Prerequisites: None

Required Material(s):

- Lesson 1 Torque Theory
- Lesson 2 Hardware—Threaded Fasteners, Bolts, Nuts, and Washers
- Lesson 3 Torque Wrenches and Their Uses
- Lesson 4 Torque Tightening
- Lesson 5 Electrical Torque Applied
- Lesson 6 Resources
- Lesson 7 Support - Labs
- Lesson 8 Final Torque Assessment

Core Curriculum: Curriculum Compass

Rigging for the Electrical Industry - CML

Item Code: J241LM.K1

Core Curriculum Session: 3

Core Credits

3.5

Course Prerequisite(s): None

Other Prerequisites: None

Required Material(s):

- *Rigging for the Electrical Industry Textbook (S761)*

- Lesson 1 Hoisting Safety
- Lesson 2 Cranes
- Lesson 3 Lift Planning
- Lesson 4 Signaling
- Lesson 5 Load Weight and Balance
- Lesson 6 Slings and Sling Hitches
- Lesson 7 Rigging Equipment Maintenance
- Lesson 8 Rigging Hardware
- Lesson 9 Chains and Chain Slings
- Lesson 10 Synthetic Slings
- Lesson 11 Wire Rope and Wire Rope Slings
- Lesson 12 Fiber Rope and Knots
- Lesson 13 Block and Tackle
- Lesson 14 Hoists

Core Curriculum: Curriculum Compass

Construction Documentation - CML

Item Code: J244LM.J2

Core Curriculum Session: 3

Core Credits

3.5

Course Prerequisite(s): Construction Drawings

Other Prerequisites: 4000 Hours of OJT

Required Material(s):

• *Construction Documentation Textbook (S749)*

• *electrical training ALLIANCE Architectural Scale (S187)*

- Lesson 1 Moving Beyond Construction Drawings
- Lesson 2 Introduction to Construction Estimating
- Lesson 3 Project Delivery Methodologies
- Lesson 4 Construction Project Communication
- Lesson 5 Project Detailing
- Lesson 6 Prefabrication
- Lesson 7 Project Closeout and Building Operation

Core Curriculum: Curriculum Compass

Preparing for Leadership: Personal Qualities - 2nd Ed.

Item Code: J900LM.A

Core Curriculum Session: 3

Core Credits

2.0

Course Prerequisite(s): None

Other Prerequisites: None

Notifications:

Instructors must have satisfactorily completed the TTT version of this course to be enrolled into this

Required Material(s):

- ***Effective Leadership Skills Textbook (\$197)***

- Lesson 1 The Contracting Business
- Lesson 2 Personal Qualities: Professionalism And Respect
- Lesson 3 Personal Qualities: Credibility and Character
- Lesson 4 Personal Qualities: Ethics and Integrity
- Lesson 5 Personal Qualities: Teaching and Learning
- Lesson 6 Communications: Effective Communication
- Lesson 7 Planning: The Importance of Planning
- Lesson 8 Planning: Planning Challenges
- Lesson 9 Communications: Crew Support and Morale
- Lesson 10 Communications: Disruptive Behaviors