

Core Curriculum

3rd Year Syllabus

None



Core Curriculum: Course Selection Per Year

3rd Year Core	
Rigging, Hoisting, and Signaling, Level I	2
Construction Documentation	3
Code, Standards, and Practices 3, Based on the 2023 NEC	2
Electrical Safety-Related Work Practices, Level I, Based on the 2021 70E	2
Electrical Safety-Related Work Practices, Level II, Based on the 2021 70E	2
Code, Standards, and Practices 6, Based on the 2023 NEC	1.5
Preparing for Leadership: Personal Qualities - 2nd Ed.	2
Grounding and Bonding, Level I, Based on the 2023 NEC	2
Grounding and Bonding, Level II, Based on the 2023 NEC	2.5
Fire Alarm Systems, Level I, Based on the 2023 NEC	2
Test Instruments, Level I	2
Transformers, Level II, Based on the 2023 NEC - 3rd Ed.	2
Transformers, Level III - 3rd Ed.	1
Lighting Essentials, Level I - 2nd Ed.	1.5
Lighting Essentials, Level II - 2nd Ed.	1.5

Core Curriculum: 3rd Year Core Courses

	Credits	Page	Date
Rigging, Hoisting, and Signaling, Level I			
J241LM.J1	2.0	1	
Construction Documentation			
J244LM.J2	3.0	2	
Code, Standards, and Practices 3, Based on the 2023 NEC			
J233LM.M	2.0	3	
Electrical Safety-Related Work Practices, Level I, Based on the 2021 70E			
J444LM.M1	2.0	3	
Electrical Safety-Related Work Practices, Level II, Based on the 2021 70E			
J444LM.M2	2.0	4	
Code, Standards, and Practices 6, Based on the 2023 NEC			
J236LM.M	1.5	4	
Preparing for Leadership: Personal Qualities - 2nd Ed.			
J900LM.A	2.0	5	
Grounding and Bonding, Level I, Based on the 2023 NEC			
J210LM.M1	2.0	6	
Grounding and Bonding, Level II, Based on the 2023 NEC			
J210LM.M2	2.5	7	
Fire Alarm Systems, Level I, Based on the 2023 NEC			
J211LM.M1	2.0	8	
Test Instruments, Level I			
J285LM.H1	2.0	9	

Core Curriculum: 3rd Year Core Courses

	Credits	Page	Date
Transformers, Level II, Based on the 2023 NEC - 3rd Ed.			
J205LM.I2_23	2.0	10	
Transformers, Level III - 3rd Ed.			
J205LM.I3a	1.0	10	
Lighting Essentials, Level I - 2nd Ed.			
J259LM.K1	1.5	11	
Lighting Essentials, Level II - 2nd Ed.			
J259LM.K2	1.5	11	

Core Curriculum: Course Level and Credit Summary

Rigging, Hoisting, and Signaling, Level I

Item Code: J241LM.J1

Core Curriculum Year: 3

Core Credits

Advanced Credits

2.0

Course Prerequisite(s): None

Other Prerequisites: 4000 Hours of OJT

Required Material(s):

- *Rigging, Hoisting, Signaling Practices Textbook (S661)*

- 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: Course Level and Credit Summary

Construction Documentation

Item Code: J244LM.J2

Core Curriculum Year: 3

Core Credits

Advanced Credits

3.0

Course Prerequisite(s): None

Other Prerequisites: None

Notifications:

Course expected 2024-2025.

Required Material(s):

Code, Standards, and Practices 3, Based on the 2023 NEC

Item Code: J233LM.M

Core Curriculum Year: 3

Core Credits

Advanced Credits

2.0

Course Prerequisite(s): Code, Standards, and Practices 2, Level II

Other Prerequisites: None

Required Material(s):

- ***National Electrical Code - 2023 (S1150)***

Lesson 1 Purpose of Overcurrent Protection and Types of Overcurrents

Lesson 2 Overcurrent Protective Device Categories

Lesson 3 Overcurrent Protective Device Ratings

Lesson 4 Types of OCPDs—Circuit Breakers

Lesson 5 Types of OCPDs—Fuses

Lesson 6 Practical Guidelines for OCPD Ampere Rating Sizing

Lesson 7 Special Conductor Overcurrent Protection Permitted, Including Taps

Lesson 8 Calculation of Available Fault Current

Lesson 9 Panelboards, Switchboards, and Switchgear SCCR—NEC 408.6

Core Curriculum: Course Level and Credit Summary

Electrical Safety-Related Work Practices, Level I, Based on the 2021 70E

Item Code: J444LM.M1

Core Curriculum Year: 3

Core Credits

Advanced Credits

2.0

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

Other Prerequisites: None

Required Material(s):

- *Electrical Safety-Related Work Practices Textbook (S944)*

Lesson 1 Electrical Safety Culture

Lesson 2 Electrical Hazard Awareness

Lesson 3 OSHA Considerations

Lesson 4 Introduction to Lockout, Tagging, and the Control of Hazardous Energy

Lesson 5 Fault Current Fundamentals

Electrical Safety-Related Work Practices, Level II, Based on the 2021 70E

Item Code: J444LM.M2

Core Curriculum Year: 3

Core Credits

Advanced Credits

2.0

Course Prerequisite(s): Electrical Safety-Related Work Practices, Level I

Other Prerequisites: None

Required Material(s):

- *Electrical Safety-Related Work Practices Textbook (S944)*

Lesson 1 Introduction to *NFPA 70E*[®]

Lesson 2 Work Involving Electrical Hazards

Lesson 3 Identifying OCPD Types

Lesson 4 Methods to Select Arc Flash PPE

Lesson 5 Maintenance Considerations

Lesson 6 Eliminating or Reducing Hazards by Design and Upgrades

Core Curriculum: Course Level and Credit Summary

Code, Standards, and Practices 6, Based on the 2023 NEC

Item Code: J236LM.M

Core Curriculum Year: Advanced

Core Credits

Advanced Credits

1.5

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

Other Prerequisites: None

Required Material(s):

- ***National Electrical Code - 2023 (S1150)***

Lesson 1	Reviewing Key OCPD Concepts
Lesson 2	Motor Branch-Circuit Devices and Protection – NEC Article 430
Lesson 3	Motor Branch Circuits and Air-Conditioning and Refrigeration Equipment
Lesson 4	Transformer Protection—Article 450
Lesson 5	Interrupting Rating: Fully Rated and Series Rated Systems
Lesson 6	Equipment Short-Circuit Protection
Lesson 7	Selective Coordination
Lesson 8	Ground-Fault Protection of Equipment

Core Curriculum: Course Level and Credit Summary

Preparing for Leadership: Personal Qualities - 2nd Ed.

Item Code: J900LM.A

Core Curriculum Year: 3

Core Credits

Advanced 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

Core Curriculum: Course Level and Credit Summary

Grounding and Bonding, Level I, Based on the 2023 NEC

Item Code: J210LM.M1

Core Curriculum Year: 3

Core Credits

Advanced Credits

2.0

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

Other Prerequisites: None

Required Material(s):

• *Grounding and Bonding Textbook (S36823)*

• *National Electrical Code - 2023 (S1150)*

- Lesson 1 Introduction
- Lesson 2 Circuit Basics and Overcurrent Protection
- Lesson 3 **Code** Arrangement and Application
- Lesson 4 Grounding Electrodes and the Grounding Electrode System
- Lesson 5 Requirements for Services and Grounded Conductors
- Lesson 6 Grounding Electrode Conductors
- Lesson 7 Bonding Requirements
- Lesson 8 Equipment Grounding Conductors (EGCs)
- Lesson 9 Grounding Electrical Equipment
- Lesson 10 Isolated (Insulated) Grounding Circuits and Receptacles

Core Curriculum: Course Level and Credit Summary

Grounding and Bonding, Level II, Based on the 2023 NEC

Item Code: J210LM.M2

Core Curriculum Year: 3

Core Credits

Advanced Credits

2.5

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

Other Prerequisites: None

Required Material(s):

- ***Grounding and Bonding Textbook (S36823)***
- ***National Electrical Code - 2023 (S1150)***
- ***Test Instruments and Applications Textbook (S571)***

- Lesson 1 Grounding at Separate Buildings or Structures
- Lesson 2 Grounding Electrical Systems
- Lesson 3 Grounding Requirements for Separately Derived Systems
- Lesson 4 Special Occupancies and Conditions
- Lesson 5 Grounding Special Equipment
- Lesson 6 Grounding and Bonding for Communications Systems and Equipment
- Lesson 7 Ground-Fault Circuit Interrupters (GFCI) and Ground-Fault Protection of Equipment (GFPE)

- Lesson 8 Grounding Rules for Medium- and High-Voltage Systems
- Lesson 9 Grounding Systems and Earth Ground Test Instruments

Core Curriculum: Course Level and Credit Summary

Fire Alarm Systems, Level I, Based on the 2023 NEC

Item Code: J211LM.M1

Core Curriculum Year: Advanced

Core Credits

Advanced Credits

2.0

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

Other Prerequisites: None

Required Material(s):

• *Fire Alarm Systems Textbook (S1046)*

• *National Electrical Code - 2023 (S1150)*

Lesson 1 Introduction to Fire Alarm Systems

Lesson 2 Fundamentals and System Requirements

Lesson 3 Initiating Devices

Lesson 4 Notification Appliances

Lesson 5 Wiring and Wiring Methods

Lesson 6 System Interfaces and Safety Control Functions

Lesson 7 Emergency Communications Systems and Emergency Voice/Alarm Communications Systems

Lesson 8 Plans and Specifications

Lesson 9 IPSI Sample Exam Fire Alarm Certification Program Level 1 Interior

Lesson 10 Sample NICET Exam

Core Curriculum: Course Level and Credit Summary

Test Instruments, Level I

Item Code: J285LM.H1

Core Curriculum Year: Advanced

Core Credits

Advanced Credits

2.0

Course Prerequisite(s): AC Systems, Level I

Other Prerequisites: None

Required Material(s):

- *Test Instruments and Applications Textbook (S571)*

Lesson 1	Voice-Data-Video (VDV) Test Instruments
Lesson 2	Power Quality Test Instruments
Lesson 3	Medium (and High) Voltage and Insulation Test Instruments
Lesson 4	Instrumentation and Process Control Test Instruments
Lesson 5	Special Maintenance Test Instruments
Lesson 6	Troubleshooting

Transformers, Level II, Based on the 2023 NEC - 3rd Ed.

Item Code: J205LM.I2_23

Core Curriculum Year: 3

Core Credits

Advanced Credits

2.0

Course Prerequisite(s): Code Calc Lvl II OR Elec Code Calc Lvl I; Transformers, Level I

Other Prerequisites: None

Required Material(s):

- *Transformers Principles and Applications Textbook (S476)* • *National Electrical Code - 2023 (S1150)*
- *Code Calculations Textbook - 2023 (S00823)*

Lesson 1	Reactors and Isolation Transformers
Lesson 2	Autotransformers
Lesson 3	Buck-Boost Transformers
Lesson 4	Understanding Transformer Overcurrent Protection
Lesson 5	Transformer Overcurrent Protection with Associated Secondary Conductor Rules

Core Curriculum: Course Level and Credit Summary

Transformers, Level III - 3rd Ed.

Item Code: J205LM.I3a

Core Curriculum Year: Advanced

Core Credits

Advanced Credits

1.0

Course Prerequisite(s): Transformers, Level I

Other Prerequisites: None

Required Material(s):

- *Transformers Principles and Applications Textbook (S476)*

Lesson 1	Electrical Safety
Lesson 2	Special Transformers
Lesson 3	Special Connections
Lesson 4	Selection and Installation
Lesson 5	Maintenance and Troubleshooting

Lighting Essentials, Level I - 2nd Ed.

Item Code: J259LM.K1

Core Curriculum Year: Advanced

Core Credits

Advanced Credits

1.5

Course Prerequisite(s): None

Other Prerequisites: 4000 Hours of OJT

Required Material(s):

- *Lighting Design Basics Textbook (S699)*

Lesson 1	Basic Concepts in Lighting
Lesson 2	The Science of Light
Lesson 3	Qualities of Light Sources
Lesson 4	Daylighting
Lesson 5	Lamps
Lesson 6	Luminaires
Lesson 7	Lighting Controls
Lesson 8	Quantity and Quality of Light

Core Curriculum: Course Level and Credit Summary

Lighting Essentials, Level II - 2nd Ed.

Item Code: J259LM.K2

Core Curriculum Year: Advanced

Core Credits

Advanced Credits

1.5

Course Prerequisite(s): Lighting Essentials, Level I - 2nd Ed.

Other Prerequisites: None

Required Material(s):

- ***Lighting Design Basics Textbook (S699)***

Lesson 1	Basic Lighting Retrofit and Energy Codes
Lesson 2	Understanding Fluorescent and HID Lighting Terminology
Lesson 3	The ABCs of Electronic Fluorescent Ballasts
Lesson 4	The ABCs of High Intensity Discharge (HID) Ballasts I
Lesson 5	The ABCs of High Intensity Discharge (HID) Ballasts II
Lesson 6	Introduction to LED Lighting and Technology
Lesson 7	LED Lighting in Detail
Lesson 8	LED Lighting Applications