



Course Name	Overcurrent Protection (2023 NEC)
Credit Hours	4 Hours – CORE credit
Instructor(s)	Jerry Durham
Reference Materials	2023 Edition of the National Electrical Code

Course Description

This course will cover 2023 NEC definitions specific to overcurrent protection and requirements for selecting and installing overcurrent protection, including branch and feeder circuits, temperatures, conductors, feeder taps, flexible cords and cables, fixture wires, standard ampere ratings, ground-fault and short-circuit protection, transformers, circuit breakers, fuses, fuseholders, panelboards, appliances, and motor circuits. This course has no prerequisites.

Learning Outcomes

At the completion of the course, licensees will be able to:

- Describe the main purpose of overcurrent protection.
- Define six terms relevant to overcurrent protection.
- Explain how to determine the minimum interrupting rating using available fault current.
- Interpret Table 310.16 in the 2023 National Electrical Code.
- Identify when ground fault protection is required for equipment.
- Calculate the minimum ampacity required for feeder taps.
- List the ampacity requirements for transformer secondary conductors.
- List the 2023 National Electrical Code requirements and applications for circuit breakers.
- Explain how a supervised industrial installation affects overcurrent protection requirements.
- Identify when an overcurrent device is permitted to be installed in the grounded conductor.
- List and describe the rules for overcurrent devices installed in panelboards.
- List the steps to size a motor feeder overcurrent protective device.
- Identify the required overcurrent protection for transformers.
- Explain GFCI protection.
- List the locations where GFCI receptacles must be installed.
- Identify where AFCI protection is required.

Equipment Requirements

You must have an active, working internet connection to access this course online, as well as a platform to access the internet, such as a computer, tablet, or phone. All popular web browsers are supported, including Google Chrome, Mozilla Firefox, Safari, and Opera. No specialized software, speaker, microphone, or web camera is required.

Schedule and Location

This course is available online at any time at www.JadeLearning.com. Upon enrolling in the course, students will have access for 180 days or until the agency-issued course expiration date, whichever comes first. After the access expiration date, the course will be removed from the student's account, and any progress in the course will be lost. Before the access expiration date, the student may sign in and out of the course as many times as needed to complete the course.

Student Support

Both general and technical support is available to the student before, during, and after taking the course online. Students have access to general customer support via phone, chat, and email. Students have access to the course instructor via a contact form in the course and email. All questions, concerns, and comments received will be responded to within one business day.

Participation/Interactivity Verification

Inactivity Timer - Students are automatically logged out of the training after 15 minutes if the system does not sense interactivity (e.g., a mouse click or typing).

Timed Logs - Per our company's record retention policy, each student's every log-in, log-out, and lesson/assessment completion time is tracked and retained as part of the student record.

Global Timer - Students will not get credit until they spend a minimum of 240 active minutes total in the course.

Identity Verification

Unique Username/Password - Each student that wants to complete a training course with us must create an account by registering a unique personal email address and password. The student must enter this unique identifier every time they want to access the course after logging out.

Assessment Details

Quizzes - The student must complete all quizzes between sections with a score of at least 75% in order to get credit for the course. Students cannot progress in the course until each question has been answered and each quiz has been successfully passed.

Overcurrent Protection (2023 NEC) Timed Outline

Section	Title	Questions	Minutes
1	Introduction		
	240.1 Overcurrent Protection. Scope. Informational Note.		4
	110.9 Interrupting Rating.		10
	110.10 Circuit Impedance and Other Characteristics.		3
	110.14(C) Temperature Limitations of Terminals.		5
	Quiz	4	
2	Basics		
	Article 100 Definitions: Coordination, Selective (Selective Coordination).		3
	Article 100 Definitions: Current-Limiting Overcurrent Protective Device.		4
	Article 100 Definitions & 240.21 Overcurrent Protection. (Tap Conductors)		8
	240.3 Other Articles: Protecting Equipment		6
	Quiz	4	
3	Sizing		
	240.4 Protection of Conductors.		7
	240.4(B) Devices Rated 800 Amperes or Less.		6
	240.4(D) Small Conductors.		5
	240.5(B) Protection of Flexible Cords, Flexible Cables, and Fixture Wires (Ampacities).		5
	240.6 Standard Ampere Ratings.		7
	Quiz	5	
4	Additional Protection		
	240.10 Supplementary Overcurrent Protection.		4
	240.13 Ground-Fault Protection of Equipment.		6
	240.15 (A) and (B) Ungrounded Conductors.		6
	Quiz	3	
5	Feeder Taps		
	240.21(B)(1) Feeder Taps. Taps Not Over 10 ft. Long.		4
	240.21(B)(2) Feeder Taps. Taps Not over 25 ft. Long.		4
	240.21(B)(4) Feeder Taps. Taps Over 25 ft. Long.		4
	240.21(C)(1-3) Transformer Secondary Conductors.		8
	240.21(C)(4) Outside Transformer Secondary Conductors		4
	Quiz	5	
6	Location and Types of Fuses		
	240.22 Grounded Conductor.		6
	240.24 Location of Overcurrent Devices on the Premises.		5
	240.30 Protection from Physical Damage & 240.33 Mounted in a Vertical Position.		5
	240.50 and 240.54 Plug Fuses, Fuseholders, Adapters, and Type S Fuses.		6
	Part VI. 240.60(A) and (B), Cartridge Fuses and Fuseholders.		5
	240.80 through 240.83 Circuit Breakers.		5
	240.85 Applications of Circuit Breakers.		3
	Quiz	7	
7	Industrial		
	240.86 Series Rating.		6
	240.90 and 100 Supervised Industrial Installations.		3
	240.92 Overcurrent Protection in Industrial Locations.		6
	245 Overcurrent Protection for Systems Rated Over 1000 Volts ac, 1500 Volts dc		5
	Quiz	4	
8	Panelboards, Other Equipment		
	Understanding a Different Type of Overcurrent Protection – Electronically Protected		5
	408.30 and 408.36 Overcurrent Protection for Panelboards.		6

	Reconditioning of Overcurrent Protection		6
	422.11 Overcurrent Protection for Appliances.		5
	424.4(B) and 424.22(B) Fixed Electric Space-Heating Equipment Overcurrent Protection.		5
	Quiz	5	
9	Motors		
	430.52 Rating or Setting for Individual Motor Circuit.		6
	430.52(C)(1)(b) When the Motor Will Not Start.		6
	430.62 Motor Feeder Short-Circuit and Ground-Fault Protection.		3
	430.72 Overcurrent Protection of Motor Control Circuits.		4
	440.22 Motor Compressor Branch-Circuit Short-Circuit and Ground-Fault Protection (Air-Conditioning and Refrigeration).		4
	Quiz	5	
10	Transformers, Fire Pumps		
	450.3(A) Overcurrent Protection for Transformers Over 1000 Volts.		6
	450.3(B) Overcurrent Protection for Transformers 1000 Volts or less.		3
	695.4 Continuity of Power for Fire Pumps.		7
	Quiz	3	
11	Service Equipment, GFCI/AFCI		
	230 Part VII. Service Equipment — Overcurrent Protection		7
	230.94 Relative Location of (the Service) Overcurrent Device and Other Service Equipment.		5
	Other Types of Protection: 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.		6
	Other Types of Protection: 210.12 Arc-Fault Circuit-Interrupter Protection.		5
	210.20(A) Overcurrent Protection. Continuous and Noncontinuous Loads.		4
	Quiz	5	
	Totals:	50	260
	Student Minimum Time Required:		240