



Course Name	Code Calculations (2020 NEC)
Credit Hours	4 Hours
Course Description	<p>This course discusses code calculations according to the 2020 National Electrical Code. The following topics will be covered: single-family dwellings calculations, multi-family dwellings calculations, feeder and neutral calculations, box fill calculations, and motors. This course has no prerequisites.</p>
Reference Materials	NFPA 70 National Electrical Code 2020 Edition
Learning Outcomes	<p>At the completion of the course, licensees can expect to be able to:</p> <ul style="list-style-type: none">• Calculate the general lighting load for a single-family dwelling.• Calculate the general lighting load for all occupancies dwelling units.• Interpret Table 224.42 for lighting loads with demand factors.• Calculate the total kVA by using volt-amps.• Calculate the service load in volt-amps and amps on a phase conductor for apartment buildings.• Describe when an additional load to a service neutral should be included in the service calculation.• Calculate the total load on a 3-phased system.• Calculate the load connected to an underground system.• Calculate the amperage draw on a single conductor.• Interpret Table 314.16(A) for the maximum number of conductors for a given metal box size.• Interpret Table 314.16(B) for the volume allowance required for a given conductor size.• Interpret Table 430.248 for the full-load current for a given motor.• Interpret Table 310.16 for the allowable ampacities of an insulated conductor on a single-phase motor.

Course Timed Syllabus	Attached
Method of Presentation	<p>This online course uses text and graphics. Multiple choice questions are used to test how well the student understands the material. Each answer choice has a response which tells the student whether the selected answer is correct or not. A running score is displayed so each person can track their progress through the class. The learning event is asynchronous and formatted as a visual lecture.</p>
Attendance Verification	<p>This course uses personal identification questions to verify attendance. A set of five simple personal ID questions are asked of a licensee before they start a course and then again, randomly, throughout the course (at least one question is asked every 30 minutes). All questions have four preset answer choices. The licensee must answer in the same way as they did at the start of the course to be able to continue training.</p> <p>This course also employs an inactivity timer, which will automatically log a licensee out of the training if the system does not sense a mouse click within 30 minutes. At the end of the course, the licensee must affirm their name, that they are the one who completed the course, and verify that their registration information is correct.</p>
Method of Assessment	<p>The licensee must complete all 51 multiple choice questions with a score of at least 75% in order to get credit for the course. Question choices are randomized, so each participant will have a unique testing experience. The course is also timed; participants will not get credit until they spend at least 200 active minutes in the course. Lastly, this course is set up to allow users to go back through the section questions and re-answer questions while they meet the time requirement.</p>
Schedule and Location	<p>This course may be taken at any time at www.JadeLearning.com. The student may sign in and out of the course as many times as needed to complete the course.</p>
Online Review Access	<p>To review this course, go to www.JadeLearning.com. Click on the orange Login button on the top right and sign into the learning system using the login information below.</p>

Username: UTEtester
Password: UTEtester

Cost

\$49.00

Instructor(s)

Jerry Durham

Code Calculations (2020 NEC) Timed Syllabus

Section	Title	Questions	Minutes
Single Family Dwelling Calculations			
1	220.12 Lighting Load for Specified Non-Dwelling Unit Occupancies.	2	7
2	220.14 (J) Other Loads - All Occupancies. Dwelling Units.	2	7
3	220.42 Lighting Load Demand Factors.	2	7
4	Part IV. Optional Feeder and Service Load Calculation. 220.82 Dwelling Units.	1	6
5	220.82(B) General Loads.	1	6
6	220.82(C) Heating and Air-Conditioning Load.	4	9
7	220.82 Optional Calculation for a Dwelling Unit.	1	6
8	Informative Annex D, Example D2(a) and D2(b).	2	7
9	220.61 Feeder or Service Neutral Load (A) Basic Calculation.	3	8
10	220.61 (B) Feeder or Service Neutral Load. Basic Calculation.	2	7
Multi-Family Dwelling Calculations			
11	220.84 Multifamily Dwelling. Part 1.	1	6
12	220.84 Multifamily Dwelling. Part 2.	2	7
Feeder and Neutral Calculations			
13	220.61 Feeder or Service Neutral Load. Part 1.	1	6
14	220.61 Feeder or Service Neutral Load. Part 2.	1	6
Calculated Loads. Phase Conductors – Three-phase loads.			
15	Ungrounded Feeder Conductors. 3-Phase Systems.	1	6
16	Ungrounded Feeder Conductors. Calculating Current.	1	6
17	Ungrounded Feeder Conductors. Continuous Loads.	1	6
Box Fill Calculations			
18	Table 314.16(A) Metal Boxes. Volume of Metal Boxes.	2	7
19	Table 314.16(A) Metal Boxes. Dimensions of Metal Boxes.	1	6
20	Table 314.16(A) Metal Boxes. Sizing Boxes for Conductors.	1	6
21	Table 314.16(A) Metal Boxes. Box Cover Volume.	1	6
22	Table 314.16(B) Volume Allowance Required per Conductor.	4	9
23	314.28(A)(1) Minimum Size. Straight Pulls.	2	7
24	314.28(A)(2) Angle or U Pulls, or Splices.	2	7
Motors			
25	Table 430.248 Full Load Currents in Amperes, Single-Phase Alternating-Current Motors.	1	6
26	Table 430.250 Full-Load Current, Three-Phase Alternating-Current Motors.	2	7
27	Table 430.247 Full-Load Current in Amperes, Direct-Current Motors.	1	6
28	430.22 Single Motor.	1	6
29	430.24 Several Motors or a Motor(s) and Other Load(s).	2	7
30	430.22. Single Motor. Table 310.16. Allowable Ampacities of Insulated Conductors.	1	6
31	430.24 Several Motors or a Motor(s) and Other Load(s).	2	7
Totals:		51	206
Time Required to Complete Course:			200