



Electricity Curriculum

Week	Year 1 - Topic	Year 2 - Topic	Year 3 - Topic	Year 4 - Topic
1	Safety; Tools of the Trade	Ohms Law Review, Series Circuits	Course Overview / Intro	Using the NEC as a Tool
2	Intro to the Trade and Apprenticeship	Ohms Law Review, Parallel Circuits	Symbols, Basic Views	Wiring Methods and Materials A
3	Devices	Review, Series-Parallel Circuits	Pictorial Views, Dimensions	Wiring Materials, Boxes, Gutters, Cable Trays, Box Fill
4	Boxes and Box Fill	Work, Energy, Power, Efficiency, and Horse Power	Specifications; Working and Shop Drawings	Designing Circuits
5	Conductors and Insulation	Voltage Drop, Regulation	Grades and Elevations	Services, Overhead vs. Lateral
6	Voltage Drop	Induction and Generation of AC	Layout, Footings, Foundation Walls	Services Location/Terminations
7	Switch Circuits	Alternating Current, RMS, P-P	Floors, Walls, Roofs	Feeders, NEC Article 215
8	Branch Circuits	Inductive and Capacitive	Concrete Work Intro	First Quarter Exam
9	Basic NEC for Residences	Impedance, PF and Shift	Concrete Floors, Columns	Branch Circuits, 210 pts A and B
10	Basic NEC for Residences	Apparent and True Power	Masonry Construction	Required Outlets
11	Services; NEC Art 230	Transformers, Impedance	Structural Steel Drawings	Branch Circuit and Feeder
12	Conduit Types and Fill	Transformers, Buck/Boost	Interior Finishes	Standard Load Calculations
13	Conduit Bending	Xfrmer Lab, Tapped Xfrmers	Cabinets, Fixtures, Stairs, and Exterior Finish	Optional Load Calculations
14	Special Systems/Lamps	3-0 Xfrmers, Delta and Wye	Plumbing and Mechanical Prints	Calculations Review
15	Fuses/Circuit Breakers	3-0 Connections and Review	Review for Midterm	Range Calculations
16	Midterm	AC Final	Midterm	Midterm Exam
17	Trade Math	Motor Types and Properties	Intro to Manor Care Plans	CPR
18	Trade Math	Principles of Motor Controls	Specs, Bid Form, Amendments	CPR
19	Magnetism, Basic Theory	Magnetic Starters, Symbols	Site Work, Concrete, Door Hardware, Mechanical	Grounding, Art 250 Part A
20	Electrical Theory, Series "A"	Line Diagrams	Division 16 - Electrical	Grounding, Art 250 Part B
21	Series Circuits Part "B"	Branch Circuit Control/Protection	Overview entire plan set	Grounding, Art 250 Part C
22	Parallel Circuits Part "A"	Multiple Motor and Wire Wound Motor Circuits	Architectural Prints	Overcurrent Protection, 240
23	Parallel Circuits Part "B"	Pilot Devices	Specific Details, Elevations, Wall Sections	Tap Rules and Feeders
24	Series/Parallel Lab	Basic Control Circuits	Structural, Foundation	Third Quarter Exam
25	OSHA Safety	Timing Relays, Push Buttons	HVAC, Mechanical Prints	Motors and Motor Circuits
26	OSHA Safety	Sequencing, Logic, PB Stations, Interlocking Methods	Plumbing, Fire Prints	Motors and Motor Controls, B



Electricity Curriculum

Week	Year 1 - Topic	Year 2 - Topic	Year 3 - Topic	Year 4 - Topic
27	Series-Parallel Circuits Part A	Reduced Voltage Starters	Electrical Prints	Bussmen Fuse Demo; Article 517 and 700
28	Series-Parallel Circuits Part B	RV Starters, Part Windings, Star/Delta, Test # 3	Review all Prints - Test	Swimming Pools, Spas, Etc.
29	Series-Parallel Circuits Part C	Deceleration, Jogging, Plugging, and Breaking Controls	Government Center Prints	AC and Refrigeration
30	Series-Parallel Circuits Part D	Acceleration, Speed Control	Government Center Prints	Transformers, NEC Article 450
31	Review for final	Motor Control Final Exam	Final on Government Center	Review for Final
32	Final Exam	Review Final, Grades Given	Review Final, Grades Given	Final Exam
	Total Hours - 150	Total Hours -150	Total Hours - 150	Total Hours -150
	1-8 Math Lab (30 hours) 9-24 Special Project (24 hours)	1-8 Math Lab (30 hours) 9-24 Special Projects (24 hours)	9-16 Term 2 Special Project (27 hrs.) 17-24 Term 3 Special Project (27 hrs.)	9-24 Special Project (24 hours)



Electrical Work Processes

	Performance Completions	Hours Required
A.	Stock, Material, and Equipment <ul style="list-style-type: none">• Identify wire type and sizes• Identify wire devices• Check stock• Identify material for a particular job• Stock work truck• Keep tools and equipment neat and orderly• Clean work vans, tools, and equipment as required	500
B.	Basic Electrical Training <ul style="list-style-type: none">• Install low voltage circuits• Replace defective devices• Make minor repairs on electrical appliances• Install telephone and television wiring (including basic hook-up)	1,000
C.	Service Work <ul style="list-style-type: none">• Check lighting• Make electrical service entrance changes• Make replacements on faulty wiring• Install additional electrical circuits• Install and connect circuits for minor and major electrical appliances• Check installation for adequate wiring sizes• Troubleshoot, modify, and repair all types of basic circuitry	1,500
D.	Residential Wiring <ul style="list-style-type: none">• Install R.X. and B.X. cable• Install outlet boxes• Install service entrance equipment• Install lighting fixtures and lamps• Check and test completed work• Check return material from job• Applying code and safety standards continuously	1,000
E.	Commercial Installation <ul style="list-style-type: none">• Install conduit: slab work, overhead work, and surface wiring• Install concrete boxes and ducts• Install fire alarm systems• Install emergency lighting systems• Install intercommunications systems• Install circuits for switchboard control centers• Install wiring and controls for air conditioning and heating systems• Make special installation of telephone ducts for extension systems• Install direct burial cable• Install fixtures and lamps	2,500



Electrical Work Processes

F. Plan and Lay-out

- Demonstrate ability to plan, lay out, and complete an electrical installation
- Demonstrate ability to interpret and apply building plans, blueprints, wiring diagrams, and engineering drawings 1,000
- Modify electrical installations as required
- Demonstrate knowledge of make-up, operation, and installation of a variety of electrical installations

G. Motor Control

- Install overcurrent devices
- Check for proper installation and rotation
- Maintain motors 500
- Demonstrate skill in the use of test equipment such as meggers, ohm meters, and ammeters.

Total number of hours required 8,000

Make note of each different task you perform and record your work experiences in your log book. Enter the number of hours you spent performing a task in the column under the code letter for that task. There is a separate line to be used for each day of the month. Total each column and write these onto a new page at the beginning of each month. Call your VADOLI representative, 703-392-0900 ext. 102 or 131, if you have any questions.