YEAR 2

LESSON PLAN

Based on the 2017 NEC®

October 30, 2017

ABOUT MIKE HOLT ENTERPRISES

Mike's passion for the electrical industry and for educating others on the *National Electrical Code*® began in 1972 while studying for a local electrical exam. His inability to find material that was well-written or properly illustrated gave him the idea to start a school that would be devoted to electrical training.

In 1975 Mike Holt Enterprises was created with very clear principles of making electrical training more effective, and providing books that were straightforward and easy to understand. This desire to create books to help electricians pass exams grew into the nation's largest "Electrical-Only" publisher that specializes in books, videos, online training, school curriculum, and seminars—changing the way the *NEC*® and electrical training is taught.

Forty years later, these standards continue to guide us. Our products are designed for student success:

- **Easy to Understand**. Text must help simplify difficult technical topics and include clear, step-by-step, detailed explanations.
- **Visual**. Full-color, detailed, instructional graphics that help students visualize what's being taught.
- **Effective**. Our Instructor Resources are designed to save teachers time and give them tools to be more successful in reaching their students.

Our primary goal as a company is to change the lives of electrical professionals through our products. We genuinely care about helping our instructors and schools prepare the next generation of electrical professionals with the skills and knowledge they need to succeed. We are here to help you every step of the way and encourage you to contact us, so we can be a part of your success.

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ABOUT THIS PROGRAM

The *Mike Holt's Electrical Apprenticeship Program—Years 1–4, Based on the 2017 NEC®* has been developed with the goal of providing the knowledge required to become a competent journeyman electrician. The training resources used throughout this program have been selected to provide the most comprehensive education possible. Supplemented with Mike's instructional support material (such as presentations, videos, and practice exams), the program is tailored to meet the needs of different types of learners.

THE SCOPE OF THIS PROGRAM

This program is 624 contact hours, divided into 208 separate 3-hour study sessions that are designed to deliver a logical flow of material. From day one, and maintained throughout the program, strong emphasis is placed on safe work practices. The program covers the *National Electrical Cod*e, and Safety in a manner relevant to today's apprentices, preparing them for their journeyman's exam and the job site.

HOW TO USE THIS PROGRAM

Use this lesson plan as an outline to help schedule the semester. You'll find that every class is different. Depending on the students in the class some sessions may require more time than allowed, while others might go quickly. Please make notes during the semester and provide us with your feedback so we can make this schedule better each year.

Students learn differently, and the same methods of presentation and study don't necessarily bring the same results for each individual. Be aware of the differences in learning styles as you present this material to the class. Some students learn better visually, and need to see diagrams and illustrations. Others learn from audible input such as lectures and class group discussions.

Hands-on learning is an important component of education, and most of it will be done on the job-site rather than in the classroom. However, when it's feasible, do bring equipment and material in to show the class. Just a little "show and tell" of components that your students haven't yet used, like control pushbuttons or AFCI breakers, can help add understanding to a lesson. When possible, try to supplement classroom instruction with field trips to view live construction projects showcasing the material being studied.

We recommend the lesson material be presented in the form of lecture and include visual aids when possible. PowerPoint presentations using an LCD projector can be very beneficial, but it's understood the necessary equipment isn't always available. In some cases, the available facilities may limit the presentation to the use of student books and whiteboards.

Involve the students as much as possible. An example is how you would handle the questions that are assigned in the books: after completing the questions, have the students take turns reading the question and their answers so they're involved in the process. Don't just read the answers to your students and don't just post them. Do what you can to interact with your students in discussion, and allow their input.

Answer questions honestly, and don't be afraid to tell your students if you don't know an answer. Of course, do take time to look it up—explain that you can't always know all the answers, but that you're there to help them in the learning process. Make sure your students understand their responsibility to the learning process—they need to do their part by reading and studying the information in their textbooks and participating in discussions. Let them know that learning is a life-long process, and there are always new things to learn in the electrical field.

You'll be successful as an instructor if you have a heart for your students and help them develop a respect for the electrical profession and a love for learning.

YEAR 2 OUTLINE

YEAR 2 OBJECTIVES

Upon the completion of Year 2, your students will have the knowledge necessary to safely and proficiently perform the job duties and responsibilities expected of a second year apprentice. The student will develop a further knowledge of construction safety, electrical safety, and chapters one through three of the *National Electrical Code*.

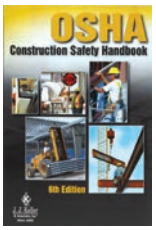
As the student studies rules in the first three chapters of the *NEC* a greater understanding of the purpose of the *Code*'s general wiring methods, materials, and different types of protection along with developing a deeper understanding of residential and commercial wiring systems will be developed.

YEAR 2 RESOURCES

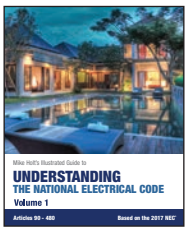
Mike Holt's Apprenticeship Training Curriculum is designed to use textbooks, videos, labs, and tests to enhance your students' learning experience.

Books

You'll be using the following books or textbooks and we suggest you take a few moments to review the layout of each. Pay attention to the table of contents, the layout of the units/chapters, and the review questions.



OSHA Construction Safety Training Handbook, 6th Edition
J.J. Keller & Associates,
ISBN 978-1-60287-891-4, 2010



Mike Holt's Understanding the National Electrical Code, Volume 1
Mike Holt Enterprises
ISBN 978-0-9863534-5-1, 2017

National Electrical Code,
2017 Edition
National Fire Protection Association,
ISBN 978-145591277-3, 2016

Videos

The instruction package includes the following videos that are designed to be played along with the textbook(s) to provide a practical viewpoint of the material being covered. If a student(s) doesn't understand something, stop, go back, and play that section again until the topic being discussed is understood.

- General Requirements DVD (Articles 90–110)
- Wiring and Protection DVD (Articles 200–285)
- Wiring Methods and Materials DVD Disc 1 (Articles 300–314)
- Wiring Methods and Materials DVD Disc 2 (Articles 320–392)

Mike and a panel of industry experts are featured on these videos. They carefully examine the topics in a way that's both educational and entertaining. You'll hear stories, discussions, and opinions that aren't covered in the textbooks thereby making them an invaluable practical source of information.

Labs

One of the most enjoyable parts of learning is getting your hands on mechanical parts such as, meters, wire, magnets, coils, light bulbs, switches, fuses, circuit breakers, receptacles, GFCIs, AFCIs, and basically anything that can be broken!

We strongly suggest you find labs that match the topic being studied as a hands-on experience to help students understand the material being covered. Seeing a mechanical concept in action makes it easier to understand the lesson being taught.

Testing

Testing is an important aspect of the learning process. Studies have shown that regardless of the result, students who are required to mentally recall a subject on a test are more likely to remember the content than those who didn't have this opportunity. Our curriculum includes different options for testing: online, textbook, and ExamView test banks.

Textbook Testing. Our textbooks contain tests that have been designed to reinforce the learning process when the Online Testing Tools aren't used. We encourage you to have your students fill in the textbook tests before taking the online tests to further reinforce their learning process.

Online Testing. Our online testing program has been specifically designed to allow you to take advantage of today's blended learning environments to reinforce the material that's been covered.

YEAR 2 LESSON PLAN—AT A GLANCE

Class	Quarter 1
1	Introduction	Orientation	Tools *Year 2*
2	OSHA Construction Safety *Electrical Safety and PPE*
3	OSHA Construction Safety *Confined Space, Emergency Response, and Lockout/Tagout*
4	***NEC***—General *Introduction*
5	NEC—General *Definitions*
6	***NEC***—General *Requirements for Electrical Installations 1*
7	***NEC***—General *Requirements for Electrical Installations 2*
8	***NEC***—Wiring and Protection *Grounded [Neutral] Conductors*
9	***NEC***—Wiring and Protection *Branch Circuits 1*
10	***NEC***—Wiring and Protection *Branch Circuits 2*
11	***NEC***—Wiring and Protection *Branch Circuits 3*
12	Quarter 1 Review
13	Quarter 1 Exam

Class	Quarter 2
1	***NEC***—Wiring and Protection *Feeders*
2	***NEC***—Wiring and Protection *Branch-Circuit, Feeder, and Service Calculations 1*
3	***NEC***—Wiring and Protection *Branch-Circuit, Feeder, and Service Calculations 2*
4	***NEC***—Wiring and Protection *Outside Branch Circuits and Feeders*
5	***NEC***—Wiring and Protection *Services 1*
6	***NEC***—Wiring and Protection *Services 2*
7	***NEC***—Wiring and Protection *Overcurrent Protection 1*
8	***NEC***—Wiring and Protection *Overcurrent Protection 2*
9	Apprenticeship Supplement *Grounding and Bonding*
10	Lab *GFCI Devices*
11	Flex Day *School/Instructor Choice*
12	Quarter 2 Review
13	Quarter 2 Exam

YEAR 2 LESSON PLAN—AT A GLANCE

Class	Quarter 3
1	***NEC*—Wiring and Protection** *Surge-Protective Devices (SPDs)*
2	***NEC*—Wiring Methods and Materials** *General Requirements for Wiring Methods and Materials 1*
3	***NEC*—Wiring Methods and Materials** *General Requirements for Wiring Methods and Materials 2*
4	***NEC*—Wiring Methods and Materials** *Conductors for General Wiring 1*
5	***NEC*—Wiring Methods and Materials** *Conductors for General Wiring 2*
6	***NEC*—Wiring Methods and Materials** *Cabinets, Cutout Boxes, and Meter Socket Enclosures*
7	***NEC*—Wiring Methods and Materials** *Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; and Handhole Enclosures 1*
8	***NEC*—Wiring Methods and Materials** *Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; and Handhole Enclosures 2*
9	***NEC*—Wiring Methods and Materials** *Nonmetallic-Sheathed/Service-Entrance Cables*
10	**Lab** *Voltage-Drop Calculations*
11	**Flex Day** *School/Instructor Choice*
12	**Quarter 3 Review**
13	**Quarter 3 Exam**

Class	Quarter 4
1	***NEC*—Wiring Methods and Materials** *UF Cable and PVC*
2	***NEC*—Wiring Methods and Materials** *AC and MC Cable*
3	***NEC*—Wiring Methods and Materials** *FMC, LFMC, and LFNC*
4	***NEC*—Wiring Methods and Materials** *EMT, IMC, and RMC*
5	***NEC*—Wiring Methods and Materials** *ENT and Metal Wireways*
6	***NEC*—Wiring Methods and Materials** *Multioutlet Assemblies, Surface Metal Raceways, and Cable Trays*
7	**Lab** *Conduit Bending*
8	**Lab** *Raceway Sizing Calculations*
9	**Flex Day** *School/Instructor Choice*
10	**Quarter 4 Review**
11	**Quarter 4 Exam**
12	**Year 2 Review**
13	**Year 2 Final Exam**