Mike Holt's

Apprenticeship Training Program

Program Level Documents

MIKE HOLT ENTERPRISES, INC.™
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www.MikeHolt.com

Revised Date: August 19, 2012

Program Description

Mike Holt's Apprenticeship Training Program

Mike Holt's Apprenticeship Training Program has been developed to provide apprentices with the knowledge required to become journeyman electricians. This four year program utilizes Mike's industry leading electrical texts that are proven to produce some of the best electricians in the industry today. Supplemented with his instructional support material such as presentations, videos, and simulated exams, this program is tailored to meet the needs of various types of learners.

This program totals 658 clock hours logically structured to create a natural progression of electrical subjects. From day one strong emphasis is placed on safe work practices and is maintained throughout the program. The first year covers electrical fundamentals which are essential in understanding specific electrical equipment operation and some complex code requirements. Blueprint reading, calculations, code requirements, and wiring methods are discussed in each subsequent year. Estimating and industrial applications are covered in detail in the final year.

Upon successful completion students are expected to be eligible *(also have the required working hours)* and able to pass their journeyman's exam. Journeyman electricians do a wide variety of electrical tasks in many different environments. From system design, to installations, and even managing and training apprentices, journeyman electricians play a vital role in the electrical industry.

Resources

Required Textbooks: Quick Reference by Year

Year One

- Basic Electrical Theory
- Understanding the NEC Volume 1 Textbook
- Understanding the NEC Volume 1 Workbook

Year Two

- Basic Electrical Theory
- Understanding the NEC Volume 1 Textbook
- Understanding the NEC Volume 1 Workbook

Year Three

- Understanding the NEC Volume 1 Textbook
- Understanding the NEC Volume 1 Workbook
- Understanding the NEC Volume 2 Textbook
- Understanding the NEC Volume 2 Workbook
- Grounding versus Bonding
- Limited Energy and Communications
- Understanding Basic Motor Controls
- Business Management Skills Workbook
- Power Quality

Year Four

- NEC Exam Preparation
- Understanding Basic Motor Controls
- Electrical Estimating
- Understanding the NEC Requirements for Photovoltaic Systems
- 101 Essential Code Rules

Resources

Program Textbook List

Basic Electrical Theory. 2nd. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-39-8

Basic Motor Controls. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-32-9, 2009

Electrical Estimating. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-50-3, 2012

NEC Exam Prepartaion. 2011. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-63-3, 2011

Understanding the NEC Volume 1. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-51-0, 2011

Understanding the NEC Volume 1 Workbook. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-70-1, 2011

Understanding the NEC Volume 2. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-59-6, 2011

Understanding the NEC Requirements for Grounding versus Bonding.
Mike Holt Enterprises, Inc, **ISBN 978-1-932685-83-1, 2011**

Understanding the NEC Requirements for Limited Energy and Communication Systems.
Leesburg: Mike Holt Enterprises, Inc, **ISBN 978-1-932685-68-8, 2011**

Business Management Skills Workbook. Leesburg: Mike Holt Enterprises, Inc,
ISBN 1-932685-25-1, 2007

101 Essential NEC Rules. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-56-5, 2011

Understanding NEC Requirements for Photovoltaic Systems. Leesburg: Mike Holt Enterprises, Inc, **ISBN 978-1-932685-54-1, 2011**

Power Quality. Leesburg: Mike Holt Enterprises, Inc,
ISBN 978-1-932685-30-5, 2011

National Electrical Code 2011. Batterymarch Park: National Fire Protection Association,
ISBN 978-087765914-3, 2010

Printreading Based On the 2011 NEC. 2011. Homewood: American Technical Publishers, Inc,
ISBN 978-08269-15701, 2011 R.T. Miller

Resources

Program Presentations

OSHA 10 Hour Training (OSHA.gov)

- Introductions to OSHA
- Electrical Safety
- Fall Protection
- Excavations
- Cranes
- Materials, Handling, Use, and Disposal
- Tools – Hand and Power
- Personal Protective Equipment (PPE)
- Scaffolds
- Stairways and Ladders

Basic Electrical Theory

- Chapter 1
- Chapter 2
- Chapter 3
- Chapter 4
- Chapter 5
- Chapter 6
- Annex A – Grounding Theory

Understanding the NEC Vol. 1

- Chapter 1 90-110
- Chapter 2 200-285
- Chapter 3 300-314
- Chapter 3 320-392
- Chapter 4 400-450

Understanding the NEC Vol. 2

- Chapter 1 90-110
- Chapter 5 500-590
- Chapter 6 600-702
- Chapter 7 725-802

Exam Preparation

- Chapter 2, Unit 5
- Chapter 2, Unit 6
- Chapter 2, Unit 7
- Chapter 2, Unit 8
- Chapter 2, Unit 9
- Chapter 3, Unit 10
- Chapter 3, Unit 11
- Chapter 3, Unit 12

Grounding versus Bonding

- Part 1
- Part 2

Electrical Estimating

Understanding Basic Motor Controls

Resources

Program Videos	# of Discs
Basic Electrical Theory	3
How to Use the NEC	1
General Requirements, Circuits and Protection	2
Wiring Methods	2
Equipment for General Use	1
Grounding versus Bonding	2
Special Occupancies	1
Special Equipment	1
Electrical Estimating	2
Understanding Basic Motor Controls	2
Exam Preparation:	
Raceway and Box Calculations	1
Conductor Sizing and Protection	1
Motor and Air Conditioning Calculations	1
Voltage Drop Calculations	1
Dwelling Unit Calculations	1
Multifamily Dwelling Calculations	1
Commercial Calculations	1
Transformer Calculations	1

Program Overview

DC Fundamentals & Residential Wiring — First Year

Topic	Hours
Orientation	**3.5**
Workplace Safety *(Construction)*	**10.5**
Direct Current Fundamentals	**38.5**
Mathematics	**07.0**
Intro to the NEC	**03.5**
General Requirements	**17.5**
Wiring & Protection	**31.5**
Blueprint Reading	**07.0**
Practical Application	**14.0**
Quarterly Exam Review & Discussion	**14.0**
Quarterly Final Examination	**14.0**
Fourth Quarter Exam Review	**03.5**
Total	**164.5**

AC Fundamentals & Commercial Wiring — Second Year

Topic	Hours
Orientation	**03.5**
Safety *(PPE)*	**03.5**
Alternating Current Fundamentals	**31.5**
Grounding *(Article 250)*	**17.5**
Wiring & Protection	**03.5**
First Aid	**03.5**
Wiring Methods	**45.5**
Blueprint Reading	**07.0**
Practical Application	**17.5**
Quarterly Exam Review & Discussion	**14.0**
Quarterly Final Examination	**14.0**
Fourth Quarter Exam Review	**03.5**
Total	**164.5**

Program Overview

Motors, Controls, & Industrial Wiring — Third Year

Topic	Hours
Orientation	03.5
Safety *(PPE)*	03.5
Power Quality	10.5
Equipment for General Use	24.5
Grounding vs. Bonding	14.0
First Aid *(CPR)*	03.5
Leadership	07.0
Special Occupancies	07.0
Special Equipment	14.0
Special Conditions	10.5
Motor Control	21.0
Blueprint Reading	10.5
Practical Application	03.5
Quarterly Exam Review & Discussion	14.0
Quarterly Final Examination	14.0
Fourth Quarter Exam Review	03.5
Total	164.5

Special Systems & Calculations — Fourth Year

Topic	Hours
Orientation	03.5
Safety *(PPE)*	03.5
Motor Control	07.0
Electrical Estimating	10.5
Fire Alarm	10.5
Lighting & Troubleshooting	03.5
Solar/PV Requirements	07.0
Calculations	52.5
Theory & Code Review	28.0
Quarterly Exam Review & Discussion	14.0
Quarterly Final Examination	21.0
Fourth Quarter Exam Review	03.5
Total	164.5

Instructor Qualifications

Minimum Experience Requirement Recommendations

Instructors should possess one or more of the following;

- Strong background in electrical theory (Associates Degree in Electrical/Electronic Technology or military equivalent preferred but not required)
- 5 years practical experience working with electricity or electronics
- 5 years practical experience working in residential wiring, commercial, or industrial wiring
- Proficient with the National Electrical Code
- Prior teaching experience or certified technical education instructor a plus
- Meet any additional school or accreditation requirements

Class Training Schedule

Class	First Year Students	Second Year Students	Third Year Students	Fourth Year Students
1	**Orientation**	**Orientation**	**Orientation**	**Orientation**
2	**OSHA 10hr Safety Training** *Construction Safety*	**Safety** *PPE*	**Safety** *PPE*	**Safety** *PPE*
3	**OSHA 10hr Safety Training** *Construction Safety*	**AC Fundamentals** *The Electrical System*	**Theory/Review 1** *Power Quality*	**Motor Control 6** *Miscellaneous Requirements*
4	**OSHA 10hr Safety Training** *Construction Safety*	**AC Fundamentals** *Protection Devices*	**Theory/Review 2** *Power Quality*	**Motor Control 7** *Review & Exam*
5	**DC Fundamentals** *Matter*	**AC Fundamentals** *Alternating Current*	**Theory/Review 3** *Power Quality*	**Electrical Estimating/Printreading** *Introduction*
6	**DC Fundamentals** *Electron Theory*	**AC Fundamentals** *Capacitance*	**NEC Equipment for General Use** *Flexible Cords & Fixture Wires*	**Electrical Estimating/Printreading** *Understanding Labor Units*
7	**DC Fundamentals** *Magnetism*	**AC Fundamentals** *Induction*	**NEC Equipment for General Use** *Switches & Receptacles*	**Electrical Estimating/Printreading** *The Estimating Process*
8	**DC Fundamentals** *Electricity*	**AC Fundamentals** *Power Factor & Efficiency*	**NEC Equipment for General Use** *Switchboards & Panelboards*	**Fire Alarm 1**
9	**DC Fundamentals** *Electromagnetism*	**AC Fundamentals** *Motors*	**NEC Equipment for General Use** *Luminaires & Low Voltage Lighting Systems*	**Fire Alarm 2**
10	**DC Fundamentals** *Uses of Electromagnetism*	**AC Fundamentals** *Generators*	**NEC Equipment for General Use** *Appliances & Fixed Electric Space Heaters*	**Fire Alarm 3**

Class Training Schedule

Class	First Year Students	Second Year Students	Third Year Students	Fourth Year Students
11	**DC Fundamentals** *The Electrical Circuit*	**AC Fundamentals** *Transformers*	**1st Quarter** *Review*	**Lighting & Troubleshooting**
12	**1st Quarter** *Review*	**1st Quarter** *Review*	**1st Quarter** *Final Exam*	**1st Quarter** *Review*
13	**1st Quarter** *Final Exam*	**1st Quarter** *Final Exam*	**NEC** **Equipment for General Use** *Motors, Motor Circuits, and Controllers*	**1st Quarter** *Final Exam*
14	**DC Fundamentals** *Math*	**Practical Application**	**NEC** **Equipment for General Use** *Air Conditioning & Transformers*	**Solar Training** *Part 1*
15	**DC Fundamentals** *Electrical Formulas*	**NEC** **Wiring & Protection** *Grounding 1*	**Safety** *Grounding versus Bonding Video Part 1*	**Solar Training** *Part 2*
16	**DC Fundamentals** *Series Circuits*	**NEC** **Wiring & Protection** *Grounding 2*	**Safety** *Grounding versus Bonding Video Part 2*	**Code Essentials 1** *101 Code Rules*
17	**DC Fundamentals** *Parallel Circuits*	**NEC** **Wiring & Protection** *Grounding 3*	**Safety** *Grounding versus Bonding Video Part 3*	**Code Essentials 2** *101 Code Rules*
18	**DC Fundamentals** *Series-Parallel Circuits*	**NEC** **Wiring & Protection** *Grounding 4*	**Safety** *Grounding versus Bonding Video Part 4*	**Code Essentials** *101 Code Rules 3*
19	**DC Fundamentals** *Multiwire Circuits*	**NEC** **Wiring & Protection** *Grounding 5*	**First Aid** *CPR*	**Calculations** *Electrician's Math* *Basic Electrical Formulas*
20	**Intro to the NEC** *How to Use the NEC (Video)*	**NEC** **Wiring & Protection** *Surge Arresters & TVSS*	**Leadership 1**	**Theory 1** *Electrical Circuits*

Class Training Schedule

Class	First Year Students	Second Year Students	Third Year Students	Fourth Year Students
21	**NEC** **General** *Introduction*	**2nd Quarter** *Review*	**Leadership 2**	**Theory 2** *Understanding Alternating Current 1*
22	**2nd Quarter** *Review*	**2nd Quarter** *Final Exam*	**2nd Quarter** *Review*	**Theory 3** *Understanding Alternating Current 2*
23	**2nd Quarter** *Final Exam*	**First Aid**	**2nd Quarter** *Final Exam*	**Theory 4** *Motors and Transformer Basics 1*
24	**NEC** **General** *Definitions 1*	**NEC** **Wiring Methods & Materials** *Wiring Methods 1*	**NEC** **Special Occupancies** *Hazardous Locations/Garages & Fuel Dispensing*	**Theory 5** *Motors and Transformer Basics 2*
25	**NEC** **General** *Definitions 2*	**NEC** **Wiring Methods & Materials** *Wiring Methods 2*	**NEC** **Special Occupancies** *Healthcare & Assembly, Mobile, Manufactured, and Temporary*	**2nd Quarter** *Review*
26	**NEC** **General** *Requirements for Electrical Installations 1*	**NEC** **Wiring Methods & Materials** *Conductors for General Wiring*	**NEC** **Special Equipment** *Electric Signs & Manufactured Wiring Systems – Office Furnishings & Elevators*	**2nd Quarter** *Final Exam*
27	**NEC** **General** *Requirements for Electrical Installations 2*	**NEC** **Wiring Methods & Materials** *Cabinets, Cutout Boxes, and Meter Sockets*	**NEC** **Special Equipment** *Vehicle Chargers & Welders*	**Calculations** *Raceway & Box Calculations*
28	**NEC** **Wiring & Protection** *Grounded (Neutral) Conductors*	**NEC** **Wiring Methods & Materials** *Outlet, Device, Pull & Junction Boxes, Conduit Bodies, and Handhole Enclosures*	**NEC** **Special Equipment** *Audio & IT Equipment*	**Calculations** *Conductor Sizing & Protection 1*
29	**NEC** **Wiring & Protection** *Branch Circuits 1*	**NEC** **Wiring Methods & Materials** *NM Cable & Service Entrance Cable*	**NEC** **Special Equipment** *Swimming Pools*	**Calculations** *Conductor Sizing & Protection 2*
30	**NEC** **Wiring & Protection** *Branch Circuits 2*	**NEC** **Wiring Methods & Materials** *UF Cable & RNC*	**NEC** **Special Conditions** *Emergency & Standby Systems*	**Calculations** *Motor & Air Conditioning Calculations 1*

Class Training Schedule

Class	First Year Students	Second Year Students	Third Year Students	Fourth Year Students
31	**NEC** **Wiring & Protection** *Branch Circuits 3*	**NEC** **Wiring Methods** *AC, MC, & MI Cable*	**NEC** **Special Conditions** *Remote Control, Signaling, and Power Limited Circuits*	**Calculations** *Motor & Air Conditioning Calculations 2*
32	**NEC** **Wiring & Protection** *Feeders*	**3rd Quarter** *Review*	**3rd Quarter** *Review*	**Calculations** *Voltage Drop*
33	**NEC** **Wiring & Protection** *Branch Circuits, Feeder, and Service Calculations*	**3rd Quarter** *Final Exam*	**3rd Quarter** *Final Exam*	**Calculations** *Dwelling Units 1*
34	**NEC** **Wiring & Protection** *Outside Wiring*	**NEC** **Wiring Methods** *FMC, LFMC, & LFNC*	**NEC** **Special Conditions** *Fire Alarm/Limited Energy & Communications*	**Calculations** *Dwelling Units 2*
35	**NEC** **Wiring & Protection** *Services*	**NEC** **Wiring Methods** *EMT, IMC & RMC*	**Blueprint Reading** **Part 5** *Industrial Locations*	**Calculations** *Multifamily 1*
36	**NEC** **Wiring & Protection** *Overcurrent Protection*	**NEC** **Wiring Methods** *Metal & Nonmetallic Wireways*	**Blueprint Reading** **Part 6** *Hazardous Locations*	**Calculations** *Multifamily 2*
37	**3rd Quarter** *Review*	**NEC** **Wiring Methods** *Surface Raceways*	**Blueprint Reading** **Part 7** *Final Exam*	**3rd Quarter** *Review*
38	**3rd Quarter** *Final Exam*	**NEC** **Wiring Methods** *Multioutlet Assembly & Cable Trays*	**Motor Control 1** *Intro to Motor Controls*	**3rd Quarter** *Final Exam*
39	**Blueprint Reading** **Part 1** *Print Reading*	**Blueprint Reading** **Part 3** *Multifamily Dwellings*	**Motor Control 2** *Motor Controls & Schematics*	**Calculations** *Commercial 1*
40	**Blueprint Reading** **Part 2** *One-Family Dwellings*	**Blueprint Reading** **Part 4** *Commercial Locations*	**Motor Control 3** *Motor Controls & Schematics*	**Calculations** *Commercial 2*

Class Training Schedule

Class	First Year Students	Second Year Students	Third Year Students	Fourth Year Students
41	**Practical Application 1** **Residential Wiring** *Device Wiring & Terminations*	**Practical Application 1** **Commercial Wiring** *Cable & Conduit Fitting Assembly*	**Motor Control 4** *Reversing Controls*	**Calculations** *Transformer 1*
42	**Practical Application 2** **Residential Wiring** *Switching Circuits*	**Practical Application 2** **Commercial Wiring** *Conduit Bending 1*	**Motor Control 5** *Reversing Controls*	**Calculations** *Transformer 2*
43	**Practical Application 3** **Residential Wiring** *Circuit Layout & Installation 1*	**Practical Application 3** **Commercial Wiring** *Conduit Bending 2*	**Motor Control 6** *Multiple Motors*	**4th Quarter Review** *Review*
44	**Practical Application 4** **First Aid** *CPR*	**Practical Application 4** **Commercial Wiring** *Conduit Bending 3* *&* *Conductor Installation*	**Practical Application**	**Final Exam** **Simulated Journeyman's Exam 1** *Theory*
45	**4th Quarter Review** *Review*	**4th Quarter Review** *Review*	**4th Quarter Review** *Review*	**Final Exam** **Simulated Journeyman's Exam 2** *NEC Code*
46	**4th Quarter** *Final Exam*	**4th Quarter** *Final Exam*	**4th Quarter** *Final Exam*	**Final Exam** **Simulated Journeyman's Exam 3** *Calculations*
47	**4th Quarter** *Exam Review*	**4th Quarter** *Exam Review*	**4th Quarter** *Exam Review*	**4th Quarter** *Exam Review*