

1st Year Syllabus



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1st Year

Section 1

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
1	How to Study This Course & Achieve Your Personal Goals	Orientation (J200.I)	1	
2	The Attributes of an IBEW/NECA Apprenticeship	Orientation (J200.I)	2	
3	Knowing Your Apprenticeship & Your Responsibilities	Orientation (J200.I)	3	
4	The IBEW & Its History	Orientation (J200.I)	4	
5	NECA's Structure & Heritage	Orientation (J200.I)	5	
6	Your Job & The Future It Holds For You	Orientation (J200.I)	6	
7	Sexual Harassment	Orientation (J200.I)	7	
8	The Economics of Employment	Orientation (J200.I)	8	
9	Safety Never Takes a Break	Orientation (J200.I)	9	

Section 2

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
10	Identifying Some Basic Tools of the Trade	Job Information-1 (J221.I)	1	
11	The Workplace of an Electrical Worker	Job Information-1 (J221.I)	2	
12	The Proper Care & Use of Ladders	Job Information-1 (J221.I)	3	
13	The Installation & Use of Fastening Devices	Job Information-1 (J221.I)	4	
14	The Reality of Electrical Shock	Job Information-1 (J221.I)	5	
15	Electrical Safety	DC Theory (J202.I)	4	
16	An Introduction to Overcurrent Protection and Devices	Job Information-1 (J221.I)	22	
17	Understanding The Function and Design of Ground Fault Interrupters	Job Information-1 (J221.I)	23	

Section 3

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
18	CAUTION: Overhead Work in progress	Job Information-1 (J221.I)	6	
19	How Wire Connectors are made and Installed	Job Information-1 (J221.I)	7	
20	Building Wire Construction and Insulation Properties	Job Information-1 (J221.I)	8	
21	How Building Wire is Sized	Job Information-1 (J221.I)	9	
22	How to Work With Fractions	Job Information-1 (J221.I)	10	
23	Using Basic Trigonometric Functions	Job Information-1 (J221.I)	11	

Section 4

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
24	Introduction to Conduit Bending	Conduit Fabrication (J204.H)	1	
25	Conduit Types	Conduit Fabrication (J204.H)	2	
26	Conduit Threading Techniques	Conduit Fabrication (J204.H)	3	
27	Hand Fabrication of 90° Stubs	Conduit Fabrication (J204.H)	4	
28	Hand Fabrication of Back-to-Back Bends	Conduit Fabrication (J204.H)	5	
	Hand Bending - 90° Bends	Conduit Lab Manual (J204L)	Lab-1	
29	Hand Bending Offsets and Kicks	Conduit Fabrication (J204.H)	6	
	Hand Bending - Offsets and Kicks	Conduit Lab Manual (J204L)	Lab-2	

Section 5

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
30	Working Properly With Aluminum Conductors	Job Information-1 (J221.I)	12	
31	Identifying Commonly Used Electrical Materials	Job Information-1 (J221.I)	13	
32	Working with Prefixes & Powers of 10	Job Information-1 (J221.I)	14	
33	Using the Metric System & Metrication Changes	Job Information-1 (J221.I)	15	
34	How to Solve Basic Algebraic Equations	Job Information-1 (J221.I)	16	
35	How to Manually Figure Square Roots	Job Information-1 (J221.I)	17	

Section 6

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
36	An Introduction to the National Electrical Code	Code & Practices-1 (J231.H)	1	
37	Understanding and Applying Article 110 of the NEC	Code & Practices-1 (J231.H)	2	
38	Understanding and Applying Article 110 of the NEC II	Code & Practices-1 (J231.H)	3	
39	Interpreting the Language of the NEC-Article 100	Code & Practices-1 (J231.H)	4	
40	General Building Wire Properties and the NEC	Code & Practices-1 (J231.H)	5	
41	Understanding Conductor Insulation and NEC Specifications	Code & Practices-1 (J231.H)	6	
42	Understanding the National Electrical Code Process	Code & Practices-1 (J231.H)	7	
43	Introduction to Wiring Devices	Code & Practices-1 (J231.H)	8	
44	General Requirements Related To Installing Wiring Devices	Code & Practices-1 (J231.H)	9	
45	Specific Receptacle Installation Requirements	Code & Practices-1 (J231.H)	10	
46	Specific Switch Installation Requirements	Code & Practices-1 (J231.H)	11	

Section 7

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
47	What is Electricity	DC Theory (J202.I)	5	
48	Electrical Energy Sources	DC Theory (J202.I)	6	
49	Electrical Switches	DC Theory (J202.I)	7	
50	Conductors, Conductor Resistance, and Wattage Loss	DC Theory (J202.I)	8	
51	Introduction to Electrical Devices	DC Theory (J202.I)	9	
52	Current, Voltage, and Resistance in a Circuit	DC Theory (J202.I)	1	
53	The Electrical Circuit and Ohm's Law	DC Theory (J202.I)	2	
	Ohm's Law-Current	DC Theory (J202.I)	Lab-1	
	Ohm's Law-Voltage	DC Theory (J202.I)	Lab-2	
	Ohm's Law-Resistance	DC Theory (J202.I)	Lab-3	
54	Power in a Circuit	DC Theory (J202.I)	3	
	Power in DC Circuits	DC Theory (J202.I)	Lab-4	

Section 8

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
55	The Series Circuit	DC Theory (J202.I)	10	
56	Understanding and Calculating Resistance in DC Series Circuits	DC Theory (J202.I)	11	
	Resistance in Series Circuits	DC Theory (J202.I)	Lab-5	
57	How Current Reacts in DC Series Circuits	DC Theory (J202.I)	12	
	Current in Series Circuits	DC Theory (J202.I)	Lab-6	
58	How Voltage Functions in DC Series Circuits	DC Theory (J202.I)	13	

Section 8 cont.

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
	Batteries in Series Circuits	DC Theory (J202.I)	Lab-7	
	Voltage in Series Circuits	DC Theory (J202.I)	Lab-8	
	Voltage in Series Circuits-Adding	DC Theory (J202.I)	Lab-9	
	Voltage in Series Circuits-Opposing	DC Theory (J202.I)	Lab-10	
59	How to Calculate Power in DC Series Circuits	DC Theory (J202.I)	14	
	Power, Current, and Resistance	DC Theory (J202.I)	Lab-11	
	Power, Voltage, and Resistance	DC Theory (J202.I)	Lab-12	
60	Energized Circuits and the Potential Hazards They Possess	Job Information-1 (J221.I)	18	
61	How to Draw Basic Electrical Circuits Correctly	Job Information-1 (J221.I)	19	
	Basic Electrical Circuits	Job Information-1 (J221.I)	Lab-1	
62	Introduction to Test Instruments	Test Instruments (J285.H)	1	

Section 9

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
63	How Current Reacts in DC Parallel Circuits	DC Theory (J202.I)	15	
	Current in Parallel Circuits	DC Theory (J202.I)	Lab-13	
64	Understanding Resistance in DC Parallel Circuits	DC Theory (J202.I)	16	
65	Working with Ratios and Proportion	Job Information-1 (J221.I)	20	
	Resistors of Equal Value in Parallel	DC Theory (J202.I)	Lab-14	
	Two Resistors of Unequal Value in Parallel	DC Theory (J202.I)	Lab-15	
	Resistors in Parallel	DC Theory (J202.I)	Lab-16	

Section 9 cont.

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
66	How Voltage Functions in DC Parallel Circuits	DC Theory (J202.I)	17	
	Voltage in Parallel Circuits	DC Theory (J202.I)	Lab-17	
67	How to Calculate Power in DC Parallel Circuits	DC Theory (J202.I)	18	
	Power in Parallel Circuits	DC Theory (J202.I)	Lab-18	

Section 10

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
68	Understanding Resistance in DC Combination Circuits	DC Theory (J202.I)	19	
	Resistance in Combination Circuits	DC Theory (J202.I)	Lab-19	
69	How Current Reacts in DC Combination Circuits	DC Theory (J202.I)	20	
	Current in Combination Circuits	DC Theory (J202.I)	Lab-20	
70	How Voltage Functions in DC Combination Circuits	DC Theory (J202.I)	21	
	Voltage in Combination Circuits	DC Theory (J202.I)	Lab-21	
71	How to Calculate Power in DC Combination Circuits	DC Theory (J202.I)	22	
	Power in Combination Circuits	DC Theory (J202.I)	Lab-22	
72	How Voltage and Current Dividers Work	DC Theory (J202.I)	23	
	Voltage Divider Circuits	DC Theory (J202.I)	Lab-23	
	Current Divider Circuits	DC Theory (J202.I)	Lab-24	
73	The Design and Operation of the Three-Wire, Single-Phase System	Job Information-1 (J221.I)	21	
	Three-Wire System	Job Information-1 (J221.I)	Lab-2	
	Faults and the Three-Wire System	Job Information-1 (J221.I)	Lab-3	

Section 11

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
74	Applying the Principle of Superposition to Circuit Calculations	DC Theory (J202.I)	24	
	The Superposition Method	DC Theory (J202.I)	Lab-25	
75	Kirchhoff's Laws	DC Theory (J202.I)	25	
	Kirchhoff's Voltage Law	DC Theory (J202.I)	Lab-26	
	Kirchhoff's Current Law	DC Theory (J202.I)	Lab-27	
	Kirchhoff's Laws-Single Source	DC Theory (J202.I)	Lab-28	
	Kirchhoff's Laws-Two Voltage Sources	DC Theory (J202.I)	Lab-29	
76	Thevenin's and Norton's Theorems	DC Theory (J202.I)	26	
	Thevenin's Theorems I	DC Theory (J202.I)	Lab-30	
	Thevenin's Theorems II	DC Theory (J202.I)	Lab-31	
	Norton's Theorem	DC Theory (J202.I)	Lab-32	
77	Understanding the Principles of Magnetism	DC Theory (J202.I)	27	
78	Understanding the Principles of Electromagnetism	DC Theory (J202.I)	28	
79	DC Generators and Motors	DC Theory (J202.I)	29	
80	Using DC Theory to Solve Real World Problems	DC Theory (J202.I)	30	

Section 12

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
81	The Fundamentals of Blueprint Drawing & How to Make Proper Sketches	Blueprints (J244.I)	1	
82	Understanding Architectural Views & How to Draw Them	Blueprints (J244.I)	2	
83	Recognizing & Understanding Common Scales Used on Blueprints	Blueprints (J244.I)	3	

Section 12 cont.

Syllabus Number	Title	Book Name/Item #	Lesson/Lab #	Date
	Math for Blueprint Reading	Blueprints (J244.I)	Lab-1	
84	Using Blueprint Specifications, Elevations & Schedules Properly	Blueprints (J244.I)	4	
85	Understanding & Drawing Electrical Symbols Used on Blueprints	Blueprints (J244.I)	5	
86	Understanding & Drawing Mechanical Symbols Used on Blueprints	Blueprints (J244.I)	6	
87	Understanding How to Properly Use a Residential Blueprint	Blueprints (J244.I)	7	
	Learning the Technique of Visualization for Blueprint Reading	Blueprints (J244.I)	Lab-2	
88	Reading and Analyzing a Residential Blueprint	Blueprints (J244.I)	8	