

IEC's Electrical Apprenticeship Program 1st Year Course Outline



First Semester

Orientation and Basic Principles
Tools, Fasteners, and Knots
Introduction to Safety, Navigating the NEC® and EWR Plans
Introduction to Electric Charges and Basic Math
Applied Math, Circuit Theory, Plans & Specs
Applied Math, Ohm's Law, Electrical Symbols, Boxes, and Box Fill
Conduit Bending
Dwelling Circuit Requirements, Outlet Locations, and General Lighting Load
Conductor Types, Ampacity, Overcurrent Protection, Type NM Cables, and Common Voltage Systems
Voltage Drop, Cable, Conduit, and Tubing
First Semester Mid-Term Review and Exam
Conductor Terminology, Switches, and Receptacles
GFCI, AFCI, and Other Special-Purpose Receptacles
Luminaires (Lighting Fixtures)
Box Fill and Introduction to Series Circuits (Front Bedroom)
Box Sizing and Series Circuits (Master Bedroom)
Lighting and Small Appliance Branch Circuits
First Semester Final Exam

Second Semester

Track Lighting, Dimmers, and Introduction to Parallel Circuits (Living Room)
Laundry and Bathroom Receptacles and Parallel Circuits
Garage and Garage Door Circuits, Underground Installations, and Parallel Circuit Calculations
Appliance and Special Purpose Outlets
Ranges, Ovens, Counter-Mounting Cooking Units, and Other Kitchen Appliances; Equipment Grounding Conductors
Bathrooms, Exhaust Fans, and Hydromassage Tubs
Heating and Air Conditioning
Residential Limited Energy Systems
Second Semester Mid-Term Review and Exam
Multiwire Branch Circuits and Introduction to Combination Circuits (Recreation Room)
Combination Circuits, Conductor Ampacity Correction, and Conduit Fill (Workshop)
Services and Service Equipment, and Cost of Electrical Power
Grounding and Bonding, Specialty Tools
Overcurrent Protection and Circuit Conditions
Service Entrance Calculations
Swimming Pools, Spas, and Hot Tubs
Home Automation, Standby Power, and Photovoltaic Systems
Second Semester Final Exam



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