First Year Curriculum

First Semester

101—Orientation and Basic Principles
102—Tools and Fasteners
103—Intro to Safety, Navigating the NEC & EWR Plans
104—Intro to Electric Charges & Basic Math
105— Applied Math, Circuit Theory, Plans & Specs
106—Applied Math, Ohm's Law, Electrical Symbols & Boxes
107—Conduit Bending
108—Dwelling Circuit Reqs, Outlet Locations & General Lighting Load
109—Cond Types, Ampacity, OC Protection,Type NM Cables & Common Voltage Systems
110—Voltage Drop, Cable, Conduit & Tubing
111—First Semester Mid-term Review and Exam
112—Cond Terminology, Switches & Receptacles
113—GFCI. AFCI & Other Special-Purpose Receptacles
114—Luminaires, Ballasts & Lamps
115—Box Fill & Intro to Series Circuits (Front Bedroom)
116—Box Sizing & Series Circuits (Master Bedroom)
117—Lighting & Small Appliance Branch Circuits
118—First Semester—Final Exam

Second Semester

119—Track Lighting, Dimmers & Intro to Parallel Circuits (Living Room)
120—Laundry & Bathroom Receptacles & Parallel Circuits
121—Garage & Garage Door Circuits, Underground Installations & Parallel Circuit Calculations
122—Appliance & Special Purpose Outlets
123—Ranges, Ovens, Counter-Mounted Cooking Units & Other Kitchen Appliances
124—Bathrooms, Exhaust Fans & Hydromassage Tubs
125—Heating & Air Conditioning
126—Residential Limited Energy Systems
127—Second Semester Mid-term Review and Exam
128—Multi-wire branch Circuits, Intro to Combination Circuits (Recreation Room)
129—Combination Circuits, Cond Ampactiy Correction, & Conduit Fill (Workshop)
130—Services & Service Equipment & Cost of Electrical Power
131—Grounding & Bonding, Specialty Tools
132—OC Protection & Circuit Conditions
133—Service Entrance Calculations
134—Swimming Pools, Spas and Hot Tubs
135—Home Automation, Standby Power & Photovoltaic Systems
136—Second Semester—Final Exam

Second Year Curriculum

First Semester

201—NEC Scope, Definitions, Working Spaces & Branch Circuits: Haz. Locations, Voltage Systems
202—Service Calculations & Class I Installations
203—Services & Class 2 Installations
204—Cond and OC Protection, Class 3 Installations
205—Grounding Terminology, Equipment Grounding Conductors & Commercial Garage Installation
206—Grounding Electrode System, Main Bonding Jumper & Motor Fuel Dispensing Facilities
207—Ohm's Law Review, Article 300, Aircraft Hangar & Bulk-Storage Facilities
208—Conduit Fill, Box Fill, Pull Box Sizing, Raceway & Cable Support; Spray Apps
209—First Semester Mid-Term Review and Exam
210—Switches, Switchboards and Panelboards & Health Care Facilities
211—Flexible Cords, Luminaires, Receptacles, Appliance & Health Care Facilities
212—Intro to AC Theory & Places of Assembly
213—AC Theory –Inductive & Capacitive Reactance: Misc. Bldgs
214—AC Theory-Impedance & Power Factor: Temporary Installation
215-1Ø Transformers: Intro, Types & Apps, Single-Voltage Calculations & Connections
216—1Ø Transformers: Dual-Voltage, Fault-Current, Code Calculations
217—First Semester Final Review
218—First Semester Final Exam

Second Semester

219—3Ø Power Generation, Transmission, Distribution: Intro to 3Ø Ohm's Law
220—3Ø Transformers—Delta-Delta
221—3Ø Transformers—Delta-Wye
222—Non-Linear Loads—3-Phase Fault Currents & Voltage Drop
223—Transformers: NEC® Requirements
224—Buck-Boost Transformers: Single & Three—Phase Connections & Apps
225—Buck-Boost Transformers—Calculations and Selection
226—Generators, Transfer Switches, Emergency Systems
227—Second Semester Mid-term Review & Exam
228—Electric Motors—DC & AC Single-Phase
229—Electric Motors—Polyphase
230—Motors: Gen Knowledge & Sizing Branch Circuit Cond
231—Motor Branch Circuit OC Protective Devices: Short-Circuit & Ground Fault-Protection
232—Motor: Overload Protection, Disconnects, Starters & EGC's
233—Locked Rotor Current & Phase Loss for Motors; A/C & Refrigeration Equipment Fire Pumps
234—Motor Feeder Conds, OCPDs, & Tap Conductors
235—Final Exam Review
236—Final Exam

Third Year Curriculum

First Semester

301—Practical Guide to OSHA & NFPA 70E
302—Intro to Grounding & Bonding
303—General Reqs for Grounding and Bonding
304—System Grounding: Grounded Conds, Systems Required to be Grounded, & Systems Not Permitted to be Grounded
305—System Grounding: Separately Derived Systems, Main Bonding Jumpers & System Bonding Jumpers
306—Grounding Electrode System and Grounding Electrode Conductors
307— Supply-Side and Load
308—Equipment Grounding and Equipment Grounding Conductors
309—Grounding of Specific Equipment & Conditions
310—First Semester Mid-Term Exam
Printreading:
311—Project Design, Development & Specifications
312—Site, Survey, Civil & Structural Drawings
313—Architectural Drawings-Lines, Dimensions & Wall Types
314—Architectural Drawings- Schedules, Details & Coordination
315— "MEP" "M" "E" and "P" Drawings
316—Leadership: Foreman Training
317—First Semester Exam Review
318—First Semester Final Exam

Second Semester

319—Test Instruments & Test Instrument Safety
320— Toggle Switch, Push Button, & Basic Load Symbols-Introduction to Ladder Diagrams
321—Introduction to Contactors and Relays
322—Applications Using Contactors and Relays
323—Manual and Automatic Control Devices
324—Ladder Diagram Applications
325—Automatic-Control Practical Applications
326—Magnetic Motor Starters
327—Magnetic Motor Starters & Pilot Devices:Practical Application Emphasis on Holding Contacts
328– Second Semester Mid-Term Review & Exam
329—Motor Overload Protection, Motor Power Connections & Practice Scenarios
330—Magnetic Motor Starters: Practical Application
331—Motor Reversing: Controllers and Connections
332—Magnetic Motor Starters: Practical-Application Emphasis on Reversing Motors
333—Latching and Alternating Relays and Jogging Circuits
334—Magnetic Motor Starter: Practical Application Emphasis on Multimotor Equipment
335—Second Semester Final Exam Review
336—Second Semester Final Exam

Fourth Year Curriculum

First Semester

401—Energized Electrical Work Relative to NFPA 70E
402—Power Distribution Systems & Phase-Loss Monitors
403—Solid State Relays & Phase-Loss Lab
404—Timing Relays: On- Delay, Interval, Recycle
405—Timing Relays: Practical App of On-Delay, Recycle & Interval Timers
406—Timing Relays: Off-Delay, One-Shot, Multi Function
407—Timing Relays Practical App of Off-DeLay, One-Shot & Multifunction Timers
408—Counters & Sensors
409—First Semester-Mid Term Review and Exam
410—Motor Starting Methods
411—Motor Drives—Accelerating & Decelerating Methods
412—Intro to Programmable Controllers
413—Advanced Lab—Automatic Car Wash
414—Energy Management & Building Automation In-cluding Latching Relays
415—Fire Suppression Systems & Advanced Lab
416—Preventative Maintenance & Troubleshooting
417—First Semester Exam Review
418—First Semester Final Exam

Second Semester

419—Intro, Definitions and Boxes
420—Cable Types & Flexible Cords: General Installa-tion Requirements
421– Raceways & Conductors
422—Dwelling Units: General Provisions
423—Dwelling Units: Specific Provisions
424—Services: Equipment & Working Space
425—Commercial Installations
426—Hazardous Locations & Health Care Facilities
427—Second Semester-Mid-Term Review and Exam
428—Misc Occupancies & Special Equipment
429—Alternative Energy Sources & Emergency Power Systems
430— Motors & Power Quality
431—Service and Load Calculations
432—BCES App & Grounding & Bonding Require-ments
433—Fire Alarm Systems—Intro and Overview
434—Intro to Limited Energy/Low-Voltage Systems
435—Second Semester-Final Exam Review
436—Second Semester Final Exam

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