ENERGY CONNECTIONS EDUCATIONAL PROGRAMS • 2018

Electric League of Western Pennsylvania

101 Course: Basic Electrical Fundamentals

SCHEDULE: **Monday 5:30-8:30pm**
September 3

INSTRUCTOR: **Jerry J. Telin, P.E.**
jtelin@duqlight.com

3 professional credit hours will be earned upon completion

This three-hour course was designed to provide a basic understanding of electricity and electrical fundamentals. The course discussion will include basic electricity including definitions of voltage, current, impedance, wattage and power factor. In addition, electrical transmission and distribution systems including single phase and three phase low voltage systems will be defined. Fundamental electrical formulas for calculating current will be provided and example problems will be solved. There will be a discussion on metering and metering equipment. Recent college graduates, project managers, electrical sales reps, and other individuals seeking a general understanding of the practical use of electrical fundamentals will benefit from this course.

2017 National Electrical Code (Ch. 1 & 3) & Electrical Fundamentals

SCHEDULE: **Monday 5:30-8:30pm**
Sept.10, 17, 24, & Oct. 1

INSTRUCTOR: **Jerry J. Telin, P.E.**
jtelin@duqlight.com

12 professional credit hours will be earned upon completion

This course will cover basic wire design as it relates to National Electric Code chapters 1, 2, and 3 and will explore the following subjects:

- Basic understanding of electrical fundamentals
- Understanding Single Phase and Three phase voltage Systems
- Conductor properties and Ampacity ratings – 2017 NEC, Article 310
- Raceways - 2017 NEC, Chapter 3 and 9 and Annex C
- Overcurrent Protection 2017 NEC – Article 240

2017 National Electrical Code (Ch. 2)

SCHEDULE: **Mondays 5:30-8:30pm**
October 8, 15, 22, & 29

INSTRUCTOR: **Jerry J. Telin, P.E.**
jtelin@duqlight.com

12 professional credit hours will be earned upon completion

This course will cover basic wire design as it relates to National Electric Code chapters 1, 2, and 3 and will explore the following subjects:

- Service and Service Equipment
- Grounding – Article 250 / Branch Circuits – Article 210
- Branch Circuit, Feeder & Residential Service Calculations – Article 220

2017 National Electrical Code (Ch. 4 & 5)

SCHEDULE: **Mondays 5:30-8:30pm**
November 5, 12, 19, & 26

INSTRUCTOR: **Timothy J. Bray, P.E.**
timbray47@gmail.com

12 professional credit hours will be earned upon completion

This course will cover advanced wire design as it relates to National Electric Code chapters 4 and 5 and will explore the following subjects:

- Motor Branch Circuit and Feeder Design – 2017 NEC, Article 430
- Motor Control Circuits – 2017 NEC, Article 430
- Reduced Voltage Starters
- Transformer Protection, Autotransformers – 2017 NEC, Article 450
- Power Factor Improvement and Capacitor Sizing – 2017 NEC, Article 460
- Electric Welders – 2017 NEC, Article 630
- Health Care Facilities – 2017 NEC, Article 517
- Power Quality - Harmonics

Fuse Application & Selective Coordination of Circuit Breakers & Fuses

SCHEDULE: **Tuesday 5:30-8:30pm**
September 11 & 18

INSTRUCTOR: **Mike Cuddy**
mcuddy@renmarkusa.com

6 professional credit hours will be earned upon completion

A fuse is a fuse…right? WRONG. Fuses and Circuit Breakers are an electrical system's last line of defense against dangerous faults and over-currents that occur every day in facilities across the country. Proper application of both types of devices is not only a NEC requirement but is critical to plant, equipment and personnel safety. In this class you will see actual faults and their affects on people and equipment and will review how the choice and application of a proper fuse really matters.

We will follow the fuse discussion with a session on selective coordination of circuit breakers and fuses including methods for localizing overcurrent conditions to restrict outages to the circuit or equipment affected. Selective coordination is required for emergency and critical power systems involving life safety. This class will train attendees on the intricacies of coordinating circuit breakers and fuses, providing insight, compliance strategies and design tips for a properly coordinated electrical system.

Upon completion, you should have:

- A respect for the dangerous energy associated with electrical faults
- Understanding of time/current values for circuit breakers and fuses
- The ability to understand markings on fuse labels and their effect on applications
- Knowledge of recommended fuse installation practice
- Summary knowledge NEC (2017) and NFPA70E Articles as related to fuses and requirements for selectively coordinated systems
- Summary knowledge of coordinating upstream and downstream circuit protective devices and the operation of electronic trip units
- Understanding of the need for electrical PPE (personal protective equipment)
- Knowledge that good circuit protection choices can protect the lives of people and equipment

DUQUESNE LIGHT CO.

All Classes are held at Duquesne Light Company
Woods Run, Building 6, Room 108
2825 New Beaver Ave • Pittsburgh, PA 15233-1003

(PLEASE NOTE:
The facility is next door to Western Penitentiary in the Northside)

SEND TO:
Electric League
1932 Beechwood Blvd
Pittsburgh, PA 15217
412-419-8868 • www.electricleague.com

Energy Connections Educational Programs Registration Form

Register at www.electricleague.com

4-WEEK COURSES: $200 EL members • $225 non-members
2-WEEK COURSE: $150 EL members • $175 non-members
101 COURSES: $100 EL members • $125 non-members
Professional Development Hours (PDHs) offered for each course.

PLEASE SELECT YOUR COURSE(S):

❑ 101 Course: Basic Electrical Fundamentals — 1 week _____ (# of attendees) x $_____ = $ _____

❑ Fuse Application & Selective Coordination of Circuit Breakers and Fuses — 2 weeks _____ (# of attendees) x $_____ = $ _____

❑ 2017 National Electrical Code (Chapter 1 & 3) & Electrical Fundamentals (*NOTE: We do NOT recommend taking the 101 Course if you are taking this class.*) — 4 weeks _____ (# of attendees) x $_____ = $ _____

❑ 2017 National Electrical Code (Chapter 2) — 4 weeks _____ (# of attendees) x $_____ = $ _____

❑ 2017 National Electrical Code (Chapter 4 & 5) — 4 weeks _____ (# of attendees) x $_____ = $ _____

TOTAL ENCLOSED: _____

Name: _____ Company: _____

Address: _____ Phone: _____

City: _____ State: _____ ZIP: _____

Email: _____

❑ Check (payable to Electric League) ❑ Mastercard ❑ VISA ❑ AmEx

Name as it appears on the card: _____

CC# _____ Security Code _____ Exp. Date _____

Billing address (if different than above) _____

Names of additional attendees:

_____ _____

_____ _____

_____ _____

CANCELLATION POLICY: 50% refund if cancelled 7 days prior to start of class.