New 8/2019

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
ELE 148 – POWER DISTRIBUTION SYSTEMS (3 CR.)

Course Description

Introduces transmission and distribution of electrical power. Includes application of transformers, distribution and over-current protection devices, substations, switchboards, feeders, bus-ways, motor control centers, generators, motors, and troubleshooting techniques associated with these systems and devices. Lecture 2 hours. Lab 2 hours. Total 4 hours per week.

General Course Purpose

This course introduces the Electrical Technology Student to fundamentals of electrical power distribution systems as it pertains to the distribution of electricity from the power station to the consumer. Provides instruction in a practical, straightforward, hands-on approach that covers the tasks and responsibilities facing today's professional residential, commercial and industrial electricians. Students will also learn how to troubleshoot, repair and maintain these systems.

Course Prerequisites/Corequisites

Prerequisite: ELE 150

Course Objectives

Upon completing the course, the student will be able to:

a) Describe primary and secondary power distribution
b) Describe, construct, and analyze single phase and polyphase transformers.
c) Analyze the operation and power distribution of AC/DC motors and generators.
d) Analyze the effects of unbalanced voltages and phases on power distribution systems.
e) Describe the function of overcurrent protection devices and how to test them.
f) Describe and perform maintenance and troubleshooting techniques associated with power distribution.
g) Describe grounding of electrical equipment and other safety requirements associated with installation and maintenance of industrial power and transmission systems.

Major Topics to be Included

a) Language of Electricity - Interpreting Symbols and Diagrams
b) Power Distribution Systems
c) AC and DC Motors and Generators
d) Transformer Connections and Calculations
e) Voltage and Phase Unbalance
f) Fuses and Circuit Breakers
g) Troubleshooting Power Distribution Systems
h) Grounding of Electrical Equipment
i) Electrical Safety