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Power System Fundamentals

View Course Details

COURSE DATES AND TIMES

Power System Fundamentals Training - This 6-Hour Live Online instructor-led course is designed for electrical power engineers working in industrial, commercial and institutional power systems.

This course is a companion to our other two power system engineering courses

Short Circuit Study & Protective Device Coordination

www.electricityforum.com/electrical-training/short-circuit-study-training

and

Arc Flash Analysis/Study Training

www.electricityforum.com/electrical-training/arc-flash-analysis-training

The best distribution system is one that is economical and adequate for present and future loads. The electrical system receives power from one or more sources and supplies power to different loads in the system. Due to the importance of distribution system to the operation of any facility, it is most essential that the best system be designed and installed.

Our Power System Fundamentals live online instructor-led course starts with sound design. A proper functioning electric power distribution system is vital to safety, maintenance, troubleshooting and the efficient operation of a modern industrial and commercial facility. The power distribution system includes high voltage utility tie circuit breakers, main transformers, medium voltage switchgear, distribution transformers, motor control centers, electric motors, variable speed drives, etc. This Power System Analysis Training Course is designed to address all aspects of industrial power distribution systems, including system

planning, equipment selection, specification and application, system grounding, protection and conformity with electrical code requirements, etc. Typical one-line will be discussed for various applications.

COURSE OBJECTIVES

Learn industrial power systems design principals, planning and analysis. This Power System Fundamentals live online course is designed for electrical power engineers to review, reinforce and refresh their knowledge of power system design, operation and troubleshooting.

Advance your knowledge and skills in system planning, equipment selection, specification and application. Learn and understand important aspects of power distribution system design steps. Improve your knowledge of how to operate your industrial power system efficiently, securely and safely.

Our Power System Fundamentals live online course Will Teach Students How To:

- Design Electrical Power Systems More Efficiently
- Better Select and Size Power System Components
- Understand the Fundamentals of Short Circuit Studies
- Understand the Basics of Coordination Studies
- Calculate Overcurrent Device Settings
- Understand Power System Design and Analysis

WHO SHOULD ATTEND

Electrical Engineers, technicians and technologists in the industrial, consulting, and utility fields involved in design, operation and maintenance who require knowledge of electrical system protection techniques.

STUDENTS RECEIVE

- This Course Includes Our Latest Electrical Protection Handbook!! (Value $20)
- **$100 Coupon** Toward any Future Electricity Forum Event (Restrictions Apply)
- Certificate of Course Completion
- 0.6 Continuing Education Unit (CEU) Credits (6 Professional Development Hours)
- **FREE** Magazine Subscription (Value $50.00)
- Course Materials in PDF Format

COURSE OUTLINE

Power System Fundamentals Online Course Outline

Introduction to Industrial and Commercial Power Systems

- Elements of Industrial Power Systems
- Typical Industrial Power Systems
- Time Domain Versus Frequency Domain
- Effects of Frequency and complex impedances
- Single Phase Power Loads
- Three Phase Power Loads
- Balanced Delta-connected loads and Balanced Wye connected loads
- Unbalanced Delta-connected loads and Unbalanced Wye connected loads

Elements of Industrial Power System

- Standards and codes
- One Line Diagram characteristics and purposes
- System Design Considerations:
- Safety
- Reliability
- Flexibility
- Voltage Considerations

Equipment Selection:

- Substation Transformers
- Switchgears & Circuit Breakers
- Fuses & Fuse Disconnects
- Power Distribution Centers
- Motor Control Centers

Power Substation Configuration

- Functions of a substation
- Simple radial and expanded radial system
- Loop systems
- Selective systems

Voltage Considerations

- System Voltage Classes
- System Voltage Terminology
- Transformer connections
- Effects of voltage variations
- Motor Voltage Unbalance

Power factor considerations

- Power flow fundamentals
- Leading and lagging power factors
- Typical plant power factor
- Induction motor characteristics
- Power factor correction sources
- Benefits of PF improvements
- Utility power costs
- Release of power system capacity
- Voltage improvement
- Techniques to improve PF
- Capacitor bank locations
- Capacitor bank concerns
- Capacitors and resonance issues
- Capacitor rating
- Power Factor calculations
- Power triangles and calculations procedures

Grounding

- Types Of System Grounding
- Selection Of System Grounding
- Ungrounded system
- Solidly grounded system
- High Resistance grounding
- Impact Of System Grounding
- Equipment grounding

Application of power system Analysis

- Why a study?
- Most common system studies
- Load flow studies
- Short circuit study
- Coordination study
- Arc Flash Study
- Harmonic problems and solutions
- Sources of harmonic currents and voltages
- Resonance conditions
- Effects of harmonics
- Harmonic Analysis

COURSE SCHEDULE:

Start: 10 a.m. Eastern Time
Finish: 4:30 p.m. Eastern Time

Contact us Today for a FREE quotation to deliver this course at your company’s location.

Request Quote