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## Power System Analysis and Design

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

<https://www.electricityforum.com/onsite-training-rfq>

Power System Analysis And Design 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 plant. 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 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 and relaying diagrams will be discussed for various applications.

### COURSE OBJECTIVES

Learn industrial power systems design principals, planning and analysis. This Power System Analysis And Design 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 Analysis And Design Training 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 Grounding/Power Quality Handbook!! (Value \$20)
- **\$100 Coupon** Toward any Future Electricity Forum Event (Restrictions Apply)
- 0.7 Continuing Education Unit (CEU) Credits for each day of Training
- **FREE** Magazine Subscription (Value \$50.00)
- Forum Presentations in Paper Format

## **COURSE OUTLINE**

### **DAY ONE**

#### **Introduction to Industrial Power Systems**

- Elements of industrial power systems
- Typical industrial power systems

#### **System Design Considerations:**

- Safety
- Reliability
- Flexibility
- Voltage Considerations

#### **System Planning**

- Load demand & survey
- Local generation
- Utility service & requirements
- Substation configuration
- Protection consideration
- Special Loads

#### **Equipment Selection:**

- Substation transformers
- Switchgears & Circuit breakers
- Fuses & Fuse disconnects
- Power distribution centers
- Motor control centers

- Surge Arresters
- Voltage/Current transformers
- Relays & Protection Schemes

## **DAY TWO**

### **Short Circuit Calculations:**

- Short circuit Terminology
- Effects of short circuits
- Sources of Fault currents
- Database & system modeling
- Short circuit results & comparison with equipment ratings
- Limiting short circuit currents
- Fuses, reactors, impedances

### **System Grounding Design**

- Types of system grounding
- Selection of system grounding
- Impact of system grounding

### **Power Flow Analysis**

- Database and system modeling
- Voltage regulation & Voltage control
- Normal & emergency operations
- Motor starting

### **Protection & Relay Coordination:**

- System protection requirements
- Overcurrent protection
- Ground fault protection
- Differential protection
- Transformer Protection
- Motor protection, Cable protection & Bus protection

## **COURSE TIMETABLE**

### **Both days:**

Start: 8:00 a.m.

Coffee Break: 10:00 a.m.

Lunch: 12:00 noon (not included with course)

Restart: 1:15 p.m.

Finish: 4:30 p.m.

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