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## Substation Design Training

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

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

Participants will cover the maintenance and testing requirements for common substation devices, including power transformers, oil, air and vacuum circuit breakers, switchgear, ground grid systems, batteries, chargers and insulating liquids. This course focuses on what to do, when to do it and how to interpret the results from testing and maintenance.

### COURSE OUTLINE

#### DAY ONE

##### I. Introduction

- Student introductions
- Pre-Test
- Safety

## **II. The Substation As A System**

- Application
- Common problems
- Ratings

## **III. Circuit Breaker Maintenance**

- Maintenance frequencies
- Inspection
- Testing
- Interpreting test results
- Devices covered
- Air circuit breakers
- Vacuum circuit breakers
- Oil circuit breakers

## **IV. Insulating Liquids**

- Sampling
- Routine tests
- Dissolved-Gas Analysis (DGA)
- Testing
- Color
- Dielectric breakdown voltage
- Interfacial tension
- Neutralization number
- Moisture
- Visual
- Dissolved-Gas Analysis (DGA)
- Interpreting test results

## **V. Transformers**

- Types
- Inspection
- Testing
- Insulation resistance
- Winding resistance
- Power factor tests
- Core excitation current
- Turns ratio (TTR)
- Gas blanket tests

## **DAY TWO**

## **VI. Lightning Arrestors**

- Types
- Inspection
- Maintenance
- Testing

## **VII. Protective Relays**

- Application
- Instrument transformers
- Inspection
- Testing
- Calibration

- Devices covered
- Voltage
- Transformer differential

### **VIII. Ground Grid Systems**

- Purpose
- Grounding theory
- Types of test equipment
- Inspection
- Testing

### **IX. Batteries and Chargers**

- Types of station batteries
- Battery systems
- Maintenance
- Inspection
- Testing

### **COURSE TIMETABLE**

#### **Both days:**

Start: 8:00 a.m.

Coffee Break: 10:00 a.m.

Lunch: 12:00 noon

Restart: 1:15 p.m.

Finish: 4:30 p.m.

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