



Substation Testing and Maintenance I

36 Hours

Who Should Attend?

This course will be of benefit to technicians, supervisors, field engineers, apprentices and others who actually perform or are responsible for the maintenance, testing and evaluation of the most common types of substations devices.

Course Description:

Participants will perform the maintenance and testing required for common substation devices, including power transformers, lightning arrestors, protective relays and insulating liquids. This hands-on, practical-based course focuses on what to do, when to do it, how to interpret the results from testing and maintenance, and the actual test procedure required.

Learning Objectives:

- Review of current industrial substation safety requirements.
- Explain the value of performing transformer insulating liquid test and dissolved gas analysis.
- How to perform the various tests required on industrial and utility transformer.
- Evaluate transformer test data.
- Explain the various tests used to determine serviceability of lightning arrestors.
- How to perform the required electrical tests on basic substation protective relays.
- How to perform required adjustments on basic substation protective relays based on test data.

Prerequisites: Basic AC and DC electrical knowledge.

TDSTI

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Substation Maintenance I Course

I. Introduction

- A) Student Introductions
- B) Pre-Test
- C) Safety

II. The Substation As A System

- A) Application
- B) Common Problems

III. Lightning Arrestors

- A) Types
- B) Inspection
- C) Maintenance
- D) Testing

IV. Transformers

- A) Types
- B) Insulating Liquids
 - i) Sampling
 - ii) Dissolved-Gas Analysis (DGA)
 - iii) Testing

V. Load-tap changers

- A) Inspections
- B) Maintenance
- C) Testing

VI. Transformer Testing

- A) Insulation Resistance
- B) Winding Resistance
- C) Turns Ratio (TTR)
- D) Winding Power Factor
- E) Bushing Power Factor
- F) Core Excitation Current

VII. Course Conclusion

- A) Class Review
- B) Final Examination

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