



Consulting and Training | Reach New Heights

Course Name

Predictive Electrical Maintenance & Diagnostics

Sector Name

Electrical Engineering

Document Type

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Predictive Electrical Maintenance & Diagnostics

Course Introduction

Many electrical failures develop progressively before they cause a trip, shutdown, or equipment loss. Rising temperatures, insulation deterioration, abnormal current patterns, connection degradation, partial discharge activity, vibration changes, and other condition indicators may provide valuable warning but only when the right parameters are monitored and their changes are interpreted correctly. Collecting more data alone does not make maintenance predictive.

Boost Consulting & Training has designed this course to help electrical professionals use condition evidence to identify developing problems and determine when maintenance action is genuinely required. Participants will explore how inspection technologies, electrical testing, thermal monitoring, condition trends, diagnostic measurements, and equipment history can be combined to detect deterioration earlier. The course focuses on practical diagnostic reasoning rather than dependence on any monitoring platform.

The main concept of this course is to detect developing electrical problems before functional failure by converting condition indicators and diagnostic evidence into timely, targeted maintenance decisions.

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Predictive Electrical Maintenance & Diagnostics

Target Audience

- ✓ Electrical maintenance engineers
- ✓ Reliability and condition-monitoring engineers
- ✓ Electrical and plant engineers
- ✓ Maintenance supervisors and technical professionals

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Predictive Electrical Maintenance & Diagnostics

Learning Objectives

- ✓ Distinguish predictive maintenance from preventive and reactive electrical maintenance approaches.
- ✓ Identify failure indicators that can be detected before electrical equipment loses function.
- ✓ Select suitable condition monitoring and diagnostic techniques for different equipment types.
- ✓ Interpret thermal, electrical, insulation, vibration, and other applicable condition evidence.
- ✓ Establish meaningful baselines and trends for monitored electrical assets.
- ✓ Recognize abnormal changes requiring investigation or maintenance intervention.
- ✓ Combine multiple diagnostic findings to improve confidence in maintenance decisions.
- ✓ Develop targeted predictive maintenance actions for critical electrical equipment.

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Predictive Electrical Maintenance & Diagnostics

Course Outline

✓ DAY 01

Moving from Scheduled to Condition-Driven Maintenance

Understanding Developing Electrical Failure

- ✓ Examining how deterioration progresses between healthy operation and functional failure
- ✓ Identifying detectable changes that can appear during different stages of degradation
- ✓ Connecting equipment failure modes with appropriate condition indicators

Selecting Assets for Predictive Maintenance

- ✓ Evaluating equipment according to criticality, failure behavior, monitoring feasibility, and consequences
- ✓ Identifying assets where predictive techniques provide meaningful maintenance value
- ✓ Developing a Predictive Maintenance Opportunity Map for an electrical equipment population

Predictive Electrical Maintenance & Diagnostics

Course Outline

✓ DAY 02

Detecting Thermal & Electrical Abnormalities

Thermal Condition Monitoring

- ✓ Identifying abnormal heating associated with connections, loading, imbalance, resistance, and equipment defects
- ✓ Interpreting thermal patterns in relation to operating load and surrounding conditions
- ✓ Avoiding misleading conclusions when comparing temperatures without sufficient operating context

Electrical Diagnostic Testing

- ✓ Applying insulation resistance, dielectric, current, and other relevant electrical tests according to equipment condition
- ✓ Comparing individual results with baseline values and historical measurements
- ✓ Completing an Electrical Diagnostic Evidence Exercise using test and thermal findings

Predictive Electrical Maintenance & Diagnostics

Course Outline

✓ DAY 03

Diagnosing Condition Across Critical Equipment

Transformer & Switchgear Condition Indicators

- ✓ Examining applicable indicators associated with insulation, connections, switching mechanisms, oil condition, and internal deterioration
- ✓ Combining inspection, operating, thermal, and test evidence to identify emerging problems
- ✓ Selecting further diagnostic actions when initial evidence remains uncertain

Motors, Cables & Distribution Equipment

- ✓ Recognizing condition indicators associated with motors, cable systems, terminations, and distribution equipment
- ✓ Connecting electrical, thermal, mechanical, and operating symptoms with likely deterioration mechanisms
- ✓ Conducting an Equipment Condition Diagnosis Challenge across multiple asset types

Predictive Electrical Maintenance & Diagnostics

Course Outline

✓ DAY 04

Reading Trends & Predicting Maintenance Needs

From Measurements to Condition Trends

- ✓ Establishing meaningful baselines for equipment under comparable operating conditions
- ✓ Recognizing gradual deterioration, sudden deviation, recurring abnormalities, and normal variation
- ✓ Determining when the rate of change is more significant than an isolated measurement

Setting Maintenance Intervention Triggers

- ✓ Establishing attention, investigation, and intervention criteria for monitored conditions
- ✓ Combining equipment criticality with deterioration evidence when deciding maintenance timing
- ✓ Running a Condition Trend Decision Simulation using evolving equipment data

Predictive Electrical Maintenance & Diagnostics

Course Outline

✓ DAY 05

Turning Diagnostics into Maintenance Action

Building the Diagnostic Decision

- ✓ Combining monitoring results, equipment history, operating context, and technical tests
- ✓ Managing conflicting evidence without escalating every abnormal reading into unnecessary maintenance
- ✓ Determining whether to continue monitoring, investigate further, schedule intervention, or act immediately

Creating Predictive Maintenance Cycle

- ✓ Linking detection, diagnosis, maintenance action, and post-maintenance verification
- ✓ Using confirmed findings to improve future monitoring and diagnostic decisions
- ✓ Developing a Predictive Electrical Maintenance Program for a selected group of critical assets

Predictive Electrical Maintenance & Diagnostics

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
Dec. 21, 2026	Dec. 25, 2026	5 days	4250.00 \$	UAE , Dubai

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