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**Course Name**

# Advanced Insulation & Thermal Analysis

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**Sector Name**

Electrical Engineering

**Document Type**

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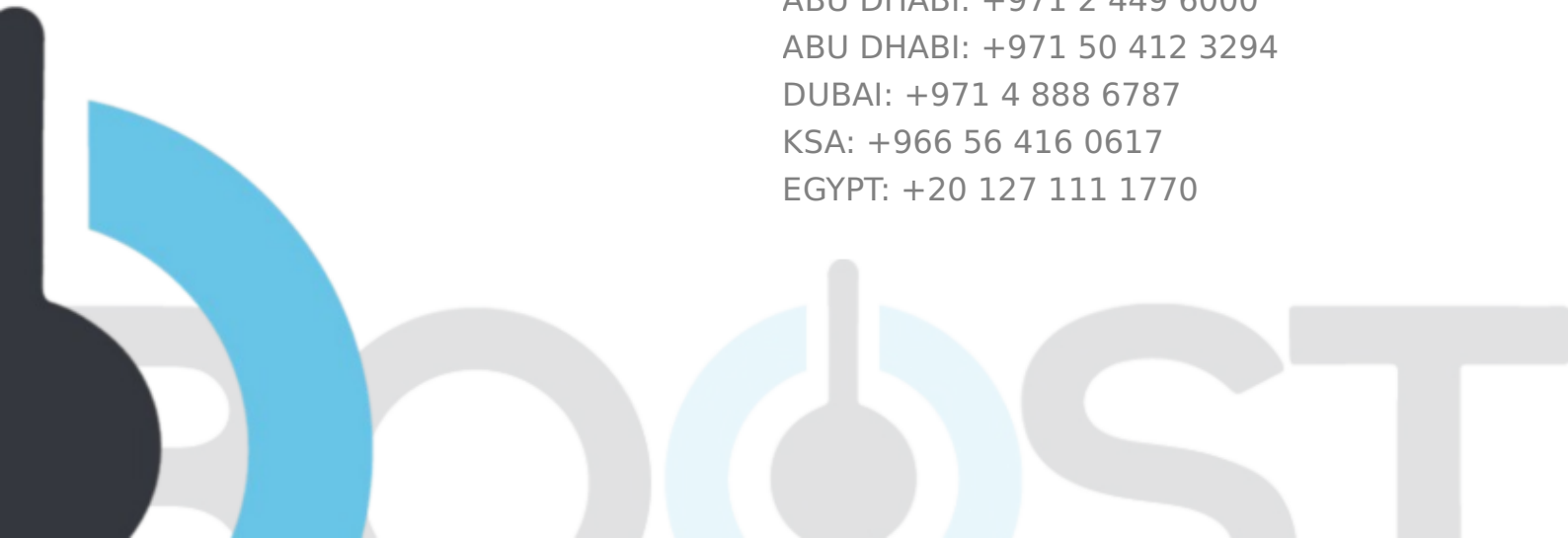
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## Advanced Insulation & Thermal Analysis

### Course Introduction

This course explores insulation systems used in power cables and their behavior under thermal stress and electrical loading.

It helps engineers understand failure mechanisms related to overheating and insulation degradation.

The program emphasizes improving cable reliability through advanced thermal assessment techniques.

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## Advanced Insulation & Thermal Analysis

### Target Audience

- ✓ Electrical Engineers working with LV, MV, HV cables
- ✓ Maintenance and Testing Technicians
- ✓ Design and Reliability Engineers in power distribution

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## Advanced Insulation & Thermal Analysis

### Learning Objectives

Provide engineers and technicians with advanced knowledge on insulation materials, thermal behavior of cables, and methods to analyze and prevent thermal related failures, ensuring reliability and longevity of cable systems.

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## Advanced Insulation & Thermal Analysis

### Course Outline

#### ✓ DAY ONE

##### **Fundamentals of Cable Insulation**

- Overview of Insulation Types and Materials (PVC, XLPE, EPR, etc.)
- Insulation Properties: Electrical, Mechanical, and Thermal
- Common Insulation Failures and Causes
- Standards for Insulation Performance (IEC, IEEE)

##### **Learning Outcomes**

- Understand different insulation types and their applications
- Recognize insulation failure modes and causes
- Apply standards in insulation selection and assessment

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## Advanced Insulation & Thermal Analysis

### Course Outline

#### ✓ DAY TWO

##### **Thermal Analysis and Performance**

- Heat Generation in Cables: Load, Environment, and Conductor Effects
- Thermal Rating of Cables: Ampacity and Derating Factors
- Thermal Modeling and Simulation Techniques
- Detecting Overheating and Hot Spots
- Case Studies of Thermal Failures

##### **Learning Outcomes**

- Analyze thermal behavior of cable systems
- Calculate ampacity and apply derating factors
- Identify potential thermal issues before failure occurs

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## Advanced Insulation & Thermal Analysis

### Course Outline

#### ✓ DAY THREE

##### **Testing, Troubleshooting & Practical Workshop**

- Thermal Testing Techniques: Infrared Thermography, Temperature Sensors
- Insulation Testing and Condition Assessment
- Troubleshooting Insulation and Thermal Issues
- Hands-on Workshop: Measuring and Analyzing Thermal Performance
- Safety Procedures and Standards
- Q&A and Open Discussion

##### **Learning Outcomes**

- Perform insulation and thermal testing effectively
- Troubleshoot insulation and heating-related problems
- Apply practical methods to improve cable reliability

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## Advanced Insulation & Thermal Analysis

### Confirmed Sessions

| FROM          | TO            | DURATION | FEES       | LOCATION         |
|---------------|---------------|----------|------------|------------------|
| May 24, 2027  | May 26, 2027  | 3 days   | 2150.00 \$ | Virtual , Online |
| July 12, 2027 | July 14, 2027 | 3 days   | 4250.00 \$ | UAE , Dubai      |
| Aug. 22, 2027 | Aug. 24, 2027 | 3 days   | 4250.00 \$ | KSA , Riyadh     |
| Nov. 3, 2026  | Nov. 5, 2026  | 3 days   | 4950.00 \$ | England , London |

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