MERCURY

Thermography Training Course

2 – 6 May 2027
Amman (Jordan)



Dubai - UAE: +971 4 450 5697
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Amman - Jordan: +962 79 712 3347

Thermography Training Course

Ref: 121488_1080952 **Date:** 2 – 6 May 2027 **Location:** Amman (Jordan) **Fees:** 4200 Euro

Introduction

The Thermography Training Course provides participants with a comprehensive understanding of infrared thermography principles and their practical applications across industrial, electrical, and building inspection environments. This course explores how thermal imaging technology supports predictive maintenance, condition monitoring, and fault detection strategies in modern operations. Participants will gain theoretical insights into heat transfer mechanisms, temperature measurement techniques, and the interpretation of thermal images. The program emphasizes the importance of accurate thermographic analysis to improve safety, efficiency, and asset reliability. It also introduces industry standards, reporting practices, and best practices for infrared inspection. Participants will apply thermal imaging solutions effectively in professional contexts.

Targeted Groups

This Thermography Training Course targets professionals seeking knowledge and skills:

- Maintenance engineers.
- Electrical technicians.
- Reliability professionals.
- Facility managers.
- Building inspectors.
- HVAC specialists.
- Energy auditors.
- Safety officers.
- Quality assurance personnel.
- Industrial operations staff.

Course Objectives

Participants will achieve the following objectives by completing the Thermography course:

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- Understand infrared thermography fundamentals.
- Explain heat transfer principles clearly.
- Identify thermal imaging applications.
- Interpret infrared images accurately.
- Detect electrical faults early.
- Analyze mechanical equipment conditions.
- Evaluate insulation performance issues.
- Apply predictive maintenance techniques.
- Recognize thermal anomalies effectively.
- Use temperature measurement concepts correctly.
- Understand emissivity and reflectivity factors.
- Improve energy efficiency analysis.
- Follow thermographic inspection procedures.
- Apply safety standards in inspections.
- Develop structured thermography reports.
- Enhance decision-making in maintenance.
- Support condition-based monitoring strategies.
- Integrate thermal imaging into operations.

Targeted Competencies

Participants will gain the following competencies during the Thermography program:

- Thermal image interpretation skills.
- Infrared camera operation knowledge.
- Heat transfer analysis capability.
- Fault detection accuracy.
- Predictive maintenance planning.
- Electrical inspection expertise.
- Mechanical system evaluation.
- Building diagnostics understanding.
- Energy loss identification skills.
- Data analysis proficiency.
- Reporting and documentation skills.
- Safety compliance awareness.
- Problem-solving in inspections.
- Technical decision-making ability.

Studying Scenarios

In this Thermography Training Course, participants develop skills through the following scenarios:

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- Inspect electrical panels for overheating risks.
- Analyze motor temperature variations.
- Detect insulation defects in buildings.
- Evaluate HVAC system performance.
- Identify energy loss in facilities.
- Assess mechanical component failures.
- Interpret thermal patterns in operations.
- Prepare professional inspection reports.

Course Content

Unit 1: Fundamentals of Infrared Thermography

- Definition of infrared thermography and thermal imaging technology.
- Principles of heat transfer: conduction, convection, radiation.
- Understanding infrared spectrum and electromagnetic waves.
- Basics of temperature measurement in thermographic inspections.
- Introduction to thermal cameras and imaging systems.
- Importance of emissivity in accurate temperature readings.
- Reflectivity and transmissivity concepts explained.
- Environmental factors affecting thermal imaging accuracy.

Unit 2: Thermal Imaging Equipment and Operation

- Types of infrared cameras and their industrial uses.
- Components of a thermal imaging camera system.
- Camera calibration and configuration techniques.
- Image capturing methods for accurate diagnostics.
- Understanding thermal resolution and sensitivity.
- Selecting appropriate lenses for inspections.
- Best practices for field thermographic data collection.
- Maintenance and handling of infrared equipment.

Unit 3: Applications of Thermography in Industry

- Electrical system inspection using infrared thermography.
- Detection of overheating components in switchgear.
- Mechanical equipment monitoring using thermal imaging.
- Identifying bearing failures through temperature patterns.
- Building thermography for insulation assessment.
- HVAC system diagnostics and efficiency evaluation.
- Energy auditing using infrared inspection techniques.
- Use of thermography in renewable energy systems.

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Unit 4: Thermal Image Analysis and Interpretation

- Reading and interpreting thermographic images.
- Identifying thermal anomalies and abnormal patterns.
- Analyzing temperature differentials in systems.
- Understanding false readings and error sources.
- Applying qualitative and quantitative analysis methods.
- Evaluating the severity levels of detected faults.
- Correlating thermal data with operational conditions.
- Decision-making based on thermographic findings.

Unit 5: Reporting, Standards, and Best Practices

- Developing professional thermography inspection reports.
- Structuring findings with clear documentation.
- Applying international thermography standards and guidelines.
- Ensuring compliance with safety and inspection protocols.
- Integrating thermography into predictive maintenance programs.
- Communicating results to stakeholders effectively.
- Continuous improvement in thermographic practices.
- Ethical considerations in inspection reporting.

Final Insights & Key Takeaways

Thermography plays a critical role in predictive maintenance, energy efficiency, and fault detection across multiple industries. Mastery of infrared thermography concepts enables professionals to enhance operational reliability and make informed technical decisions.