IR Thermography CAT I ISO 18436-7

The **Mobius Institute**™ *will prepare you for life as an infrared thermographer. You will have a good understanding about the fundamentals of infrared thermography including but not limited to:*

- *Understand all the camera settings (and which ones you must select depending upon your unique testing environment) to ensure you capture valid, informative, repeatable data that will enable you to make an accurate diagnosis.*
- *Understand the science of infrared energy, heat transfer, and thermodynamics so that you can avoid the myriad of sources of errors and understand what you can see in the thermal image.*
- *Understand the equipment you are testing and why heat is generated and transmitted so that you can determine the nature and severity of the fault condition.*

Course Description

Duration: 3 .5 days training plus optional 2-hour exam

Example Hours:

Training Days 1-3: 8.00am to 5.00pm
Training Day 4: 8.00am to 11.00am
Exam Day 4: 11.00am to 1.00pm

Format: Classroom learning

Optional: Certification examination, 2 hours, 75% passing grade

Compliance: Follows ISO 18436-7 and Certification ISO 18436-1, ISO/IEC 17024, Training ISO 18436-3

Pre-Study: Registered students are given access to the online version of the course via the Mobius Institute Learning Zone™ before the class and for four months after course completion to assist them with converting the course information into practice.
Lifelong Learning option for lifetime access to online resources available to purchase.

Certification Prerequisite:

Prior experience is not required for attending the training course, but 12 months of experience, verified by an independent person, is required for certification.
Candidates must pass the Ishihara color perception test.

Outcome:

Certification is valid for 5 years.
See course summary for categories covered.

Course Materials

- Pre and post online course study
- Interactive assessments during the course
- Course notes
- Diagnostic mousepad
- Certificate of Completion
- Mobius Certificate
- Mobius membership

Course Includes

Course (& Materials)

- 3.5 day classroom training
- Pre and post course online Learning Zone study resources
- Diagnostic Reference Guide
- Course Notes/Manual
- Certificate of Completion
- Lunches and refreshments

Exam

- 2 hour Certification exam
- 50 multiple-choice questions

Registration

For further information or to request a quote, please visit: **www.thermalign.com.au**
email: **admin@thermalign.com.au**
phone: **0419 600 143**

IR Thermography CAT I
ISO 18436-7

Course Summary

Maintenance practices
- Reactive, preventive, condition-based, proactive
- How to decide between them

Condition monitoring
- Why it works
- Vibration, ultrasound, oil analysis, wear particle analysis, and electric motor testing
- Detecting faults, root causes, and quality control

Principles of thermography
- Understanding the difference between heat energy and temperature
- The laws of thermodynamics
- Heat transfer modes – conduction, convection and radiation
- The thermal capacity of different materials

Thermal conduction
- The fundamentals of conduction
- Conductive heat transfer rate
- Thermal conductivity of different materials

Thermal convection
- The fundamentals of convection
- Compensating for the "wind cooling effect"

Thermal radiation
- The fundamentals of radiation
- Emitted, reflected and transmitted radiation
- Radiation wavelengths and the electromagnetic spectrum
- Emissivity and the Stefan-Boltzmann Law
- Incident and exitant radiation

Equipment and data acquisition
- Understanding the infrared camera
- Lenses and lens materials
- Capturing and controlling the image with temperature range, level and span
- Color palette selection
- Error source recognition, prevention and control
- Calibrating the thermal camera
- Environmental and operational conditions
- Image storage and management

Safety rules and guidelines
- Hazard awareness
- Standards and guides
- Personal Protective Equipment (PPE)

Thermographic applications
- The basic principles of diagnostics (ISO 13379) and prognostics (ISO 13381)
- Machinery engineering principles
- Electrical application – fuses, transformers, switchgear, transmission lines etc
- Mechanical application – pipes, tanks, refractories, heat exchangers etc
- Civil applications – windows, air leaks, construction integrity etc
- Process applications – steam traps

General image interpretation guidelines
- Image processing
- Fault Classification

Report generation
- Providing actionable information

Infrared Thermography Category 1 – Certification

All trained, Mobius certified thermographers receive personalised logos with their certification number and name for their own professional use. Mobius Institute also maintains a listing of all certified thermographers on our website. For more information about Mobius Institute's accreditation, and the recognition of your certification by the ISO 18436-7 standard, please visit **www.mobiusinstitute.com/certification**

MOBIUS INSTITUTE TRAINING CENTER ATC AUTHORIZED Thermalign Pty Ltd

Thermalign
Rotating Equipment Specialists

MOBIUS INSTITUTE BOARD of CERTIFICATION EXAMINATION CENTER AEC AUTHORIZED Thermalign Pty Ltd