Level I Infrared Certification

Level I Course Summary

AIRT's Infrared Certification courses are designed to meet and exceed SNT-TC-1A recommended practices. A theoretical background is a must for understanding the real-world problems that face thermographers in the field today. This *theoretical background training* will be combined with *hands-on operator training*. This combination will teach not only the basics of system operation, but also the finer points of your specific thermal imager, in order to allow you maximum usage from your infrared instrument. The principles behind most industries' main applications will be taught. In addition, students will learn the techniques and reporting procedures necessary to put together an effective predictive maintenance program.

Level I Infrared Certification Outline

Thermal / Infrared Physics

The Nature of Heat and Temperature
Heat Transfer Mode Familiarization
Conduction Fundamentals
- Fourier's Law (concept)
- Conductivity / Resistance Basics

Convection Fundamentals
- Newton's Law of Cooling
- File Coefficient / File Resistance

- Radiation Fundamentals
- Stephan Boltzmann Law (concept)

Radiosity Concepts
Reflectance, Transmittance, Absorptance, Emittance
Radiometry and Imaging
Spatial Resolution Concepts
Error Potential in Radiant Measurement

Temperature Measurement

- Performing Accurate Temperature / Emissivity Measurement
- Compensating for Distance and Small Object Size
- Field Quantification
- Checking Equipment Calibration

Infrared Equipment Operation

Introduction
Thermography Defined
How Imagers Work
Equipment Overview / Features
Operation of Equipment
- Select the Best Perspective
- Image Area and Lens Selection
- Use of Filters
- Optimizing the Image

Infrared Image and Documentation
Clarity (spatial focus)
Thermal Focus (level and span)
Dynamic Range
Recognizing and Dealing with Reflections
Recognizing and Dealing with Convection
Support Data Collection
Environmental Data Emittance
Surface Modification
Surface Reference Temperature
Support Equipment for Infrared Inspection

Report Generation

- IR Software Generic Overview
- Elements of a Good Report
- Page Layouts
- Database Programs
- Printing

Infrared Application Overview

Electrical Inspections
Mechanical Inspections
Furnace Inspections
Detecting Thermal Anomalies Resulting from Differences in:
- Thermal Resistance – Insulation / Refractory
- Thermal Capacitance – Roof Moisture Surveys
- Physical State – Gas / Liquid, Liquid / Solid
- Fluid Flow – Tube Blockages
- Friction – Bearings, Gears
- Exothermic / Endothermic Conditions
- Electrical Resistance, Insulation Voids

NETA CTD Program Recognized Course

CTDCs: 38 hours

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The Academy of Infrared Training also offers economical ***On-Site or In-House Training.***

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