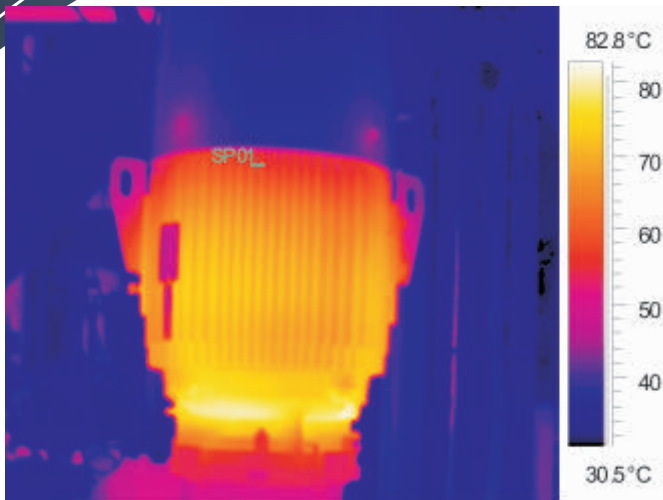


INFRARED NOVICE TRAINING

for Operations and Maintenance Personnel



Why: To provide Operations, Maintenance, technical and new Thermographer trainees working in industry with a working knowledge of Infrared-Thermography. The attendees will know how to operate an IR camera, understand simple IR images, support Level I and Level II Thermographers and know how to include IR in their process system equipment reliability programs.

Target Audience: All pipeline, oil industry, chemical industry and utility industry individuals with responsibility for managing, operating or maintaining process equipment. To get the most from this course, we recommend that all attendees have a good knowledge of operations, maintenance and/or technical support of petrochemical process equipment.

What: An Infrared-Thermography introductory 1 day course that covers the basics of IR. The course describes Infrared-Thermography technology skills basics and the technology's terminology and concepts. It provides coverage of the basics in using IR on pipeline equipment including pumps, reciprocating compressors, electrical systems, instrumentation systems, and piping systems. The course will explain what IR is, what IR can do in a predictive maintenance program, how to prepare to become a Level I Thermographer, how to use an IR camera, and how to support an IR program.

Instructor: Albert Ohliger is President of AO Technical Services, a technical consulting company. He is a retired Electrical/Mechanical Engineer with 33 years of petrochemical engineering experience primarily in oil and gas processing, managing Predictive Maintenance and Reliability programs.. Mr. Ohliger is ASNT PDM/TIR Level III certified #107428. He has worked in upstream, downstream and midstream oil industry and polymer chemicals manufacturing. His experience includes maintenance engineering, reliability engineering, and predictive/preventive maintenance technologies. He is a member of the American Society for Non-destructive Testing

Where: Technical Toolboxes
3801 Kirby Dr. #501
Houston, TX 77098

Price: \$495.00 per person which includes: attendance fee, Course materials, use of the class demo IR camera, Continental breakfast, and lunch. You are encouraged to bring your own IR camera.

Class Outline:

Day 1:

Infrared-Thermography Energy Principles
IR Safety Considerations
IR procedures and regulations
IR Properties

What is IR Surveying
Predictive and preventative Maintenance Basics
General uses in
 ↻Electrical,
 ↻Instrumentation/Electronics
 ↻Mechanical Equipment
 ↻Fixed Equipment
 ↻Buildings
 ↻Fire Fighting
 ↻Process Support



Measurement basics
Emissivity
Detecting Anomalies

Examples of Infrared-Thermography

IR Camera Use and setup
Image setup techniques
Operator setup basics
Types of commercial IR cameras

IR-Thermography Analysis Fundamentals
Image collection techniques
Reflection problems
Emissivity problems



**Please complete the attached form
and fax to TTI at 713-630-0560**

Course Cost:

Course Date:

Name

Company

Address

Address

City, State, ZIP

Country

Phone/Mobile

Fax

E-mail

Payment by Credit Card

Circle One: VISA MasterCard AMEX

CC Number

Expiration Date

Signature*

*** By signing above I commit to paying the course fee when invoiced**

Terms and Conditions: One registration is required per person. Upon receipt of your above registration, an invoice will be generated for payment. Payment is due 30 days from receipt of invoice. Full price of the course fee will be refunded provided written cancellation is received 3 weeks prior to course date. A cancellation after the deadline will receive full credit towards a future date for the same course.

Technical Toolboxes
3801 Kirby Drive, Suite 520
Houston, TX 77098
Tel: 713-630-0505
Fax: 713-630-0560
Email: training@ttoolboxes.com

Technical Toolboxes offers training courses in the use of our Pipeline Toolbox software and in several pipeline technical areas. These courses can also be customized to accommodate individual client company needs and delivered at your company's facilities as required. Courses that are offered include:

- * Petroleum Engineering – Technical Overview Training
- * Understanding Fitness-For-Service
- * Understanding Automated Ultrasonic Testing of Pipeline Girth Welds
- * Introduction to Nondestructive Evaluation Course and Demonstrations
- * Understanding Eddy Current as an Advance NDE Technology course
- * Advanced Horizontal Directional Drilling -
- * Oil & Gas Gathering Pipelines Regulatory
- * API 653 Data Analysis & Reporting Training
- * Pipeline Project Management – Practices &
- * Liquid Penetrant Testing Training Course
- * Hot-Tapping of Pipelines Practices & Procedures
- * Understanding In Service AST Tank Inspection
- * Pipeline Toolbox Training Course
- * Integrity Assessment of Early Generation (Pre-1970 Pipe
- * Official RSTRENG Training & Qualification
- * Pipeline Crossings (Practices & Procedures)
- * Horizontal Directional Drilling - Comprehensive Coverage of HDD Technologies for Utility and Pipeline Applications.
- * Understanding Long Range Guided Wave Ultrasonic Testing & Interpretation of Results

TTI also collaborates with pipeline industry associations and engineering and consulting firms to provide concentrated training courses in Direct Assessment, Cathodic Protection, Hot-Tap Design and other pipeline technical areas. If you would like to receive specialized or on-site training for one of the courses above, please contact us at 713-630-0505 or by email at training@ttoolboxes.com.