

# Category 1 Thermography Certification Course

## 5 day workshop

*Gain an internationally recognised qualification in a rapidly growing industry.*

*No matter what brand of camera you have, this course will teach you how to use your thermal imaging camera to it's full potential!*

### Course Date:

## 5<sup>th</sup> - 9<sup>th</sup> October 2020

### Penrose, Auckland

Presented by

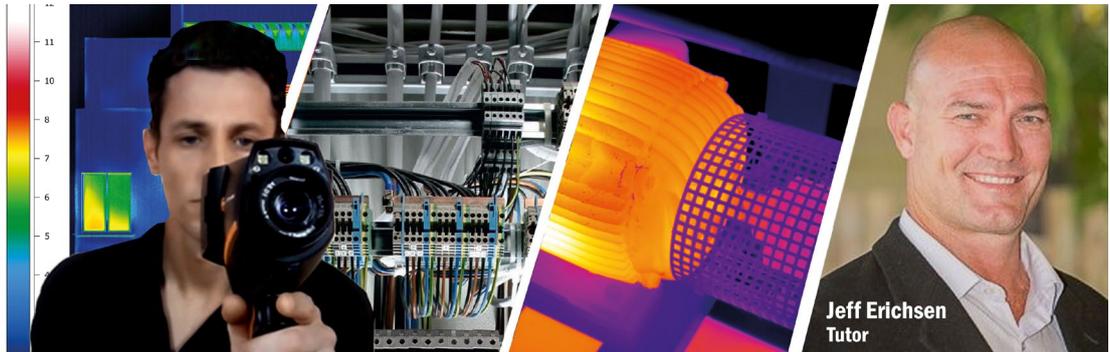
## Eurotec Ltd

with tutor Jeff Erichsen

Director of Operations of the Asia Pacific Region for Advanced Infrared Resources

Jeff Erichsen is an expert trainer and advisor for infrared thermography.\*

For more information on Jeff, see Bio on page 4.



**\* Due to Covid-19 travel restrictions, Jeff will be conducting the course via Microsoft Teams, and our Business Unit Manager and qualified thermographer Tom Aldridge, will be managing the class and assisting with practical lessons.**

### Testimonials

*"The course was delivered in a manner that was easy to understand and by an experienced tutor. The relaxed environment and facilities made learning the course material enjoyable. The ability to use a camera for those who don't own one was an advantage also."*

*William Shaw, NZDF*

*"Great course. If you need to learn anything/everything concerning thermography - attend the course!."*

*Deon Steenkamp, McKay Ltd*

*To get the most out of the hands on workshops, if available please bring your camera with you. Don't have a camera? Eurotec can provide cameras for the duration of the course.*



Cat

# 1



## 5 Day Category 1 Certification/Operator Course Outline

This course meets or exceeds the recommended training curriculum of ASNT-TC-1A for Category 1 Thermal/Infrared Certification as well as ISO 18436-7. The course is a good mixture of audio, visual, and kinetic presentation material.

The hands-on workshops ensure that the students leave the course with confidence in their ability to operate their IR equipment. Certification will be granted to students who successfully complete the written requirements. Class size is limited to give maximum interaction between instructor and students.

### Introduction to Infrared Thermography and predictive maintenance

#### **Basic Thermal Physics**

Introduction to Temperature  
Matter, Energy, Temperature  
Temperature scales  
Introduction to Heat

#### **Basic Heat Transfer Theory**

Thermodynamics  
Change of State  
Specific Heat  
Conduction, Convection, Radiation

#### **Electromagnetic Radiation**

The Electromagnetic Spectrum  
Infrared Explained  
Introduction to Planck's Curves

#### **The Infrared Image**

How an Infrared Image is Produced

#### **Qualitative Thermography**

#### **Operating Your Equipment**

How Your Camera Works  
Detectors-Focal Plane Arrays (FPA)  
3 Main Controls: Focus, Level, Span  
Getting a Good Image Workshop

#### **Infrared Radiation Physics**

The Stephan Boltzmann Law  
Wein's Law  
Planck's Law  
Emission, Reflection, Transmission  
Emissivity

*Temperature Measurement Workshop*  
*Emissivity Testing Workshop*

#### **Imaging and Analysis Factors**

Inspection Techniques  
Atmospheric Attenuation  
Field of View  
Instantaneous Field of View  
Instantaneous Measurement Field of View  
IMFOV Workshop  
Infrared Lenses  
Infrared Windows

#### **Applications (As pertinent to class)**

Introduction to Applications  
Reporting  
Electrical Inspections  
Mechanical Inspections  
Process Inspections  
Building Inspections  
Flat Roof Inspections  
Class Application Discussions  
Workshop

#### **Software**

General Software Discussion

#### **Category 1 Examination**





## Quality, personalised training to international standards.



**Jeff Erichsen The Director of Operations for the Asia Pacific Region** for Advanced Infrared Resources has been involved in the condition monitoring of heavy mobile equipment and fixed plant in the mining industry since early 2013. He stumbled upon the technology in late 2012 and immediately recognised its prospective value in his field and began to heavily research its uses.

Jeff States:

I am a passionate maintenance professional that specialises in the condition monitoring of most machinery operating on a mine site. In 2013 I had to research and review relevant information and ISO standards to then carefully collect and collate the data on the types of machinery I was familiar with. Following that, I spent most of my first year developing my own standards, procedures and methodologies for each type of equipment that I had worked on. This involved many hours of before and after repair testing with thermography and mechanical methods to validate my findings. What we now have is a full working infrared condition monitoring system that offers our clients unprecedented predictive maintenance opportunities.

I have also carried out many thermography surveys on electrical switchboards, distribution boards, motor circuit control boards and power distribution components, sub-stations and lines. This has given me a depth of knowledge in the fascinating field of electrical thermography.

I am an active committee member of the Australian Professional Thermography Association (AUSPTA) which assists the Australian Institute of Non-Destructive Testing (AINDT) and Standards Australia in the development and implementation of standards in relation to Infrared Thermography.

It was at this time that I was fortunate enough to meet Mr Wayne Ruddock of Advanced Infrared Resources. I took to Wayne's no bull approach immediately and asked Wayne to mentor me, particularly in the area of scientific data collection for the research and development at the Neurophysics Institute in the area of rehabilitation.

I am looking forward to providing you with Infrared Thermography Training in such a thorough, practically focussed training course.

### Professional Background:

- *Director and Trainer at Advanced Infrared Resources Australia Pty Ltd.*
- *Director of Operations for the Asia Pacific region for Advanced Infrared Resources Canada.*
- *Director & Full Time Thermographer at Infrared Inspections & Technologies.*
- *Level 3 Certified thermographer through Advanced Infrared Resources Canada (August 2017)*
- *Level 1 & 2 ITC (Infrared Training Centre) Certified Thermographer through the University of Melbourne.*
- *Cat 1 AINDT (Australian Institute of Non-Destructive Testing) Certified Thermographer.*
- *Active AUSPTA (Australian Professional Thermographers Association) Committee Member.*
- *Active research partner with the Neurophysics Institute, Gold Coast, Queensland, Australia. Researching the use of Infrared Thermography in the validating of non-linear biological transitions in blood flow during the rehabilitation process.*
- *Twice presenting at the Sirfrt national condition monitoring forum Australia.*
- *6 times presenting at the AUSPTA national thermography conferences.*
- *20+ years in the mining industry as a heavy mobile equipment fitter.*