

LEVEL II CURRICULUM

1. Thermometry Fundamentals

- Temperature scales and conversions
- Absolute and relative temperatures
- Classes and benefits of contact thermometers
- Classes and benefits of non-contact thermometers
- Identifying and reducing errors

2. Advanced IR Theory

- Units for measuring radiant power
- Relationship between power and temperature
- Planck's blackbody curves

3. Temperature Measurement Error Sources and Corrections

- Calibration
 - o how IR sensors are calibrated
 - o how to check calibration
 - o calibration/accuracy specifications
- Reflectance
 - o shielding techniques
 - o measuring & compensating for with direct and reflector methods
- Emittance
 - o how emittance varies
 - o using default and table values
 - o how to measure emittance
- Transmittance
 - o filters to view through materials and atmospheres
 - o filters to measure temperatures of material surfaces and atmospheres
 - o measuring material transmittance
- Target Width/Distance Ratios
 - o calculating target size/distance

4. Traceable Temperature Limits: How Hot is Too Hot

- Delta-T classifications
 - NETA, Mil Spec, and other standards
- Absolute temperature classifications
 - ANSI, IEEE, NEMA standards for electrical systems
 - correction formula for load and ambient temperature
 - other standards for mechanical systems
- Developing limits for your equipment

5. Preparing Quantitative Reports

- Data to gather
- Report procedures
- Image processing software capabilities
- Report generation software capabilities