

January 23 – 24, 2017
The Florida Hotel & Conference Center | Orlando, Florida

TE-6 | Monday, January 23, and Tuesday, January 24 | 8:00 AM - 5:00 PM | Two-Day
Course Title: Selection, Calibration, and Use of Contact Thermometers

Instructor: Dawn Cross, National Institute of Standards and Technology (NIST)

Track: Thermodynamics

Type: Dimensional

Technical Level:

Beginner – course content is designed for students with no previous experience

Course Description:

In this seminar, we will discuss contact thermometers commonly used in industry for applications that use platinum resistance thermometers, thermistors, and thermocouples.

Lecture topics covered will include:

- Thermometer overview of each type, characteristics, and expected uncertainties,
- Selecting a thermometer for a specific application,
- Creating a calibration uncertainty budget and a temperature measurement uncertainty budget,
- Selecting and using digital thermometers,
- Calibration techniques and measurement validation methods,
- Alternatives to traditional calendar recall dates for recalibration,
- Statistical process control and maintaining traceability to NIST,
- The step-by-step development of a Scope of Accreditation (e.g. uncertainty budgets) for different temperature calibration services,
- An assessor's point of view during an on-site technical assessment, and
- Proficiency tests for achieving accreditation.

Laboratory session will include:

- Using digital thermometers
- Using an ice melting to check the calibration status of your thermometer
- Determining the uncertainty of a dry-well block calibrator
- Exploring the measurement differences and uncertainties between digital thermometers

Instructor Biography:

Dawn Cross has performed calibrations of industrial thermometers at NIST since 1996. In this work, she has calibrated an extremely large variety of thermometers, including platinum resistance thermometers, thermistors, thermocouples, and a large variety of liquid-in-glass thermometers. She is both a member and officer of ASTM committee E20 on Temperature, and a member of ASTM D2 on Petroleum, affording her an excellent perspective on the needs of industrial users. She has authored papers on the uncertainties of thermistor and liquid-in-glass thermometers.