This 3-day short course provides practical training for personnel responsible for the selection and calibration of portable instrumentation and survey meters, as well as laboratory counters and air samplers.

The course will concentrate on the applicable ANSI standards (ANSI N323A, B & C, ANSI N42.17 A, B & C) and other accepted guidance (eg. NUREG’s, NCRP’s IAEA Technical Reports, etc.) and how these standards apply to the routine operation of a calibration facility. Although the concentration is on the selection and calibration of portable instrumentation (including air sampling and field counting instruments), the basic principles of calibrating laboratory equipment (whole body counters) will also be addressed.

The course will also address the basic types of hand-held HP instruments, which to select in measuring various types and strengths of radiation fields, and the capabilities and limitations of each.

Course topics include: principles of radiological instrument calibration; techniques to help simplify the writing of instrument calibration procedures; calculation of the Lower Limit of Detection (LLD); design of a calibration facility, calibration record keeping requirements; and qualifications and initial/continuing training of calibration technicians.

Why this course is different...

- This is the only available short course devoted almost entirely to the calibration of portable radiation protection instrumentation.
- This course is designed for persons responsible for portable radiation protection instrument calibration - most other courses are designed solely for personnel with fixed laboratory responsibilities.
- This course incorporates the latest information from HPS/ANSI standards (ANSI N42.17A, B & C, etc.) on the calibration of health physics instrumentation.
- The focus on ANSI industry standards, which are necessary for establishing the audit trail required with today’s regulatory emphasis on proper QA, adequate procedures and traceability to national radiation standards (most nuclear power plants incorporate compliance with ANSI standards into their Tech Specs).
- Included will be recent guidance essential for proper beta calibration - important with today’s concerns about hot particle and other skin exposures.
- Other important standards (including ANSI/ANS and ANSI/IEEE) which also apply to radiation protection instrument calibration will be covered (e.g. record keeping requirements, personnel qualifications & training, and instrumentation).

Lead Instructor...

Ted Borst is the Facility Manager and Radiation Protection Manager for Public Service Company of Colorado’s Fort St. Vrain Independent Spent Fuel Storage Installation (ISFSI). He is responsible for operating the facility in accordance with NRC and State of Colorado regulations. Mr. Borst previously served as the manager of the Fort St. Vrain Decommissioning Project. He was responsible for the radiation protection, final release survey, training, emergency preparedness, and security functions of the decommissioning project. Mr. Borst is certified by the American Board of Health Physics, holds an M.S. in Radiation Biology and has over 22 years of experience in power reactors, NRC materials licenses, and the DOE environment. He has served on many local and national health physics committees, including chair of the Continuing Education Committee of the American Board of Health Physics, and is a member of the Nuclear Energy Institute’s ad hoc committee on residual radioactivity limits.
Course Outline

- Basic Types of Hand-held Instruments and Smear Counters
- Selecting Instruments to Measure Various Types and Strengths of Radiation Fields and Contamination
  - Alpha
  - Beta
  - Gamma
- Capabilities and Limitations of Each Type of Instrument
- Statistics Fundamentals and Interpretation of Survey Results
- Basic Types/Categories of Radiation Protection Instruments
  - Gas filled detectors
  - Scintillation detectors
  - Semi-conductor detectors
- ANSI N323 Radiation Protection Instrumentation Test and Calibration
  - Functional requirements
  - Quality control and quality assurance
  - Calibration equipment
  - Calibration facility
- ANSI N42.17 Performance Specifications for Health Physics Instrumentation
  - Portable instrumentation for use in normal environmental conditions
  - Portable instrumentation for use in extreme environmental conditions
  - Occupational airborne radioactivity monitoring instrumentation
- Special Calibration Considerations and Conditions
  - 10CFR20 impact on Instrument calibration
  - Gamma dose equivalent calibration
  - Beta dose equivalent calibration
  - Neutron dose equivalent calibration
  - Calibration of contamination monitors
- Developing Procedures for Instrument Calibration
  - Development of common formats for similar instruments
  - Use of the standard procedure INPO format
  - Review of manufacturer’s technical literature
  - Intended use of instrument
  - Procedure “walk-through” and review/revision
- Facilities, Equipment and Sources for Calibrations
  - General considerations
  - Measuring and test equipment
  - Radiation sources
  - Radiation source characterization
  - Calibration frequency
  - Laboratory accreditation
- Recordkeeping, Personnel Qualifications and Continuing Education Guidelines
  - ANSI N13.6-1999
  - ANSI/ANS 3.1-1999
- Summary and Conclusion

Accommodations

This course will be held at the Sheraton Fisherman’s Wharf. A block of rooms has been reserved at reduced rates for course participants. Please make your reservation directly with the hotel by calling 415-362-3500 – please specify that you are attending Technical Management Services’ short course to receive the group rate.

The reserved block of rooms will be released 3 weeks prior to the course (at which time rooms will be offered on an availability basis only).

Continuing Education Credits

The AAHP has awarded this course 32 CEC’s. The ID number associated with this course is 2011-00-007.

Registration

Name________________ Company________________
Address_______________________________________
City_________ State_ Zip______________
Telephone_________ Fax________________
Email____________________________________
Course Fee: $1195.00
Bill my company
P.O. Number:___________________________
Charge Credit Card:________________________
  Visa Mastercard American Express
Card No.____________ Exp. Date__________
Signature__________________________

4 Easy Ways To Register....
1. Register online: www.tmscourses.com
2. Call TMS at (860) 738-2440
3. Fax your registration (860) 738-9322
4. Mail the attached form:
   TMS, P.O. Box 226, New Hartford, CT 06057