

External Radiation Dosimetry

July 15-19, 2019 ♦ San Francisco, CA

Course Fee: \$1295

This 5-day course provides a review and update of recommended approaches to external dosimetry with a focus on the nuclear power industry (but the discussions on personnel monitoring and portable survey instrumentation are applicable to any radiation protection program). Also, included is a discussion of special exposure situations including hot particle exposures and multiple badging requirements. Standards applicable to personnel monitoring devices and portable survey instruments will be discussed in addition to recommended calibration techniques.

A COURSE DESIGNED TO HELP YOU UNDERSTAND ...

- The basic principles used to determine absorbed dose equivalent to the whole body, skin, extremities and affected organs.
- Recent ICRP recommendations and limits for external exposures.
- Operating principles of personnel monitoring devices, including the advantages and limitations of various TLD types.
- The latest techniques for determining shallow skin dose from hot particles.
- Record keeping and reporting of regulatory compliance.
- Assessment of the need and approach to multiple badging.
- The proper selection of portable survey instruments to assess exposure rates.
- The principles of effective ALARA program design and documentation.



Onsite Training

Looking for a cost effective way to train 5 or more people?



Onsite training is a great solution for many companies.

With training dollars being stretched more than ever, you get maximum value with an onsite course.

Save up to 50% over open enrollment courses...AND each course is customized to your specific needs.

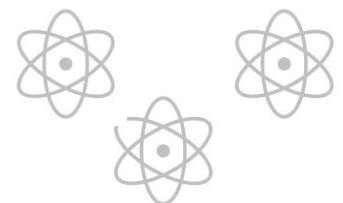
Contact TMS for further details.



THE AMERICAN ACADEMY OF HEALTH PHYSICS (AAHP) HAS AWARDED THIS COURSE 40 CONTINUING EDUCATION CREDITS.

FOR FURTHER INFORMATION OR ASSISTANCE, PLEASE CONTACT:

Technical Management Services
 Phone: 1-860-738-2440
 Fax: 1-860-738-9322
 info@tmscourses.com
 www.tmscourses.com



COURSE TOPICS

Using Units and Dimensions

- Units and dimensions
- Special units
- Manipulating units
- Exponential and unit notation
- Orders of magnitude
- Fundamental conversions
- Radiological Unit conversions
- Greek Alphabet

Charged Particle Interactions

- Types of charged particles
- Types of charged particle interactions
- Transmission through material
- Charged Particle Detection Methods

Photon Interactions

- Types of photon interactions
- Transmission through material

Neutron Interactions

- Neutrons and their classification
- Sources of neutrons
- Neutron interactions
- Quantification of neutron interactions
- Neutron cross sections
- Important neutron interactions
- Neutron detection mechanisms
- Interaction analogies

Radiation Quantities

- Development of radiation quantities
- Fields of photons
- Energy in materials
- Dose to tissues
- Deep and shallow doses (external)
- Committed dose quantities (internal)
- Collective dose quantities
- Comments on regulatory quantities

Radiation Detector Fundamentals

- Basic approach to detection
- Types of detection systems
- Detector performance
- Gas-filled detectors
- Scintillation detectors
- Semiconductor detectors

Gamma Ray Spectroscopy

- Motivation for gamma ray spectroscopy
- Gamma ray spectroscopy equipment
- Spectral features
- Factors affecting spectra
- Spectrum analysis methods

Practical Detectors

- Choosing the correct detector
- Practical hints on operating detectors
- Portable survey instrumentation
- Area and portal monitors
- Friskers
- Air sampling
- Finding and characterizing spills
- Wipe tests
- Environmental monitoring with integrating dosimeters
- Field monitoring (surveillance of large areas)
- As-measured vs. as-reported data
- In-situ gamma ray spectroscopy
- High radiation field environments
- Two-dimensional and three-dimensional radiation field characterization

External Dose Estimation and Shielding

- Approaches to external dose limitation
- Flux and fluence
- The specific gamma ray constant
- Point sources
- Dose to a volume due to a point source
- Integrating over volume sources and targets
- Line sources
- Plane circular sources
- Cylindrical sources
- Simple approach to shielding problems: Buildup Factor
- Buildup factor
- Shielding charged particles
- Shielding photons
- Shielding neutrons
- ICRP and NCRP reports
- Shielding codes: Point kernel approaches
- Shielding codes: Monte Carlo approaches

Personnel Dosimetry

- Requirements for external dosimetry
- Detectors
- Personnel Dosimeter (Badge) Design

Regulations and Practices

External Dose Problem Solving

External Dosimetry Knowledge Review

HOW TO REGISTER ...

Visit our website at www.tmscourses.com and register online, or call 860-738-2440.

Registration questions can be emailed to info@tmscourses.com.

ACCOMMODATIONS

This course will be held at the Sheraton Fishermans'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 702-650-2000— 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).

CANCELLATION POLICY:

Cancellations are accepted up to three weeks prior to the start of the course. After this time a \$100 cancellation fee will be charged. Registrants who cancel within 1 week of the course will be liable for the full course fee. Occasionally, enrollment for a course is low and it becomes necessary for us to cancel the course. We apologize for any inconvenience a cancellation may cause and will make every effort to reschedule the course or make other arrangements for you.

In the event TMS may cancel a course due to low enrollment, notice will be given 2 weeks prior to the class.