Radiation Safety Program Management (RSO)

This 5-day course is designed to provide RSO’s and assistant RSO’s the technical and practical training necessary for establishing and implementing a technically sound and cost-effective radiation safety program at a licensed facility. The course includes a review of basic mathematics, radiation and radioactivity, and operational health physics and provides additional practical guidance and case studies of applied radiation safety programs. In addition, it examines all applicable regulations for NRC and Agreement States and provides suggestions for monitoring and improving program performance.

WHO SHOULD ATTEND:

This course has been developed for those who need to be accepted by NRC or Agreement States as a Radiation Safety Officer for licensing purposes. It is geared to those with minimum technical background or those needing a working knowledge of compliance with NRC or Agreement State regulations.

See What Others Have Said About TMS Courses

Very effective and practical presentation. The right amount of detail.”

“Excellent instructor. Good examples of situations from instructor’s experiences.”

“This course provided me with practical ideas that I can use on my day-to-day job.”

“Good presentation style. Worked well with class.”

“This was one of the best courses I have ever taken. The instructor was clear and precise. Case studies and job experiences shared with the class were excellent learning tools.”

“Very enjoyable. Helpful course.”

“I consider myself lucky to have been able to take this course.”

“I was very much impressed with the knowledge and quality of the instructor.”
Course Topics

**Basic Mathematics Review**
- Fundamental Concepts
- Unit Conversions

**Physical Principles of Radiation & Radioactivity**
- Atomic & Nuclear Structure
- Radioactivity & Decay

**Interaction of Radiation with Matter**
- Charged Particle Interactions
- Photon Interactions
- Neutron Interactions

**Biological Effects of Radiation**
- Effects on Water
- Effects on Living Cells
- Effects on Human Organ Systems
- Whole-Body Effects in Humans

**Radiation Dosimetry**
- Quantities & Units
- Dose Calculations

**Radiation Sources**
- Natural Sources
- Man-made Radiation Sources

**Radiation Detection & Measurement**
- Principles of Detection
- Gas-Filled Detectors
- Liquid Scintillation Detectors
- Solid State Detectors
- Instrument Calibration

**External Dosimetry**
- Ideal Personnel Monitor Characteristics
- Photographic Badges
- Thermoluminescent Dosimetry (TLD)
- Hybrid Badges
- Performance Testing of Badge Systems
- Criticality Badges
- Special Badges

**Internal Dosimetry**
- Bioassay
- In-Vivo Counting
- Dosimetric Calculations

**Environmental Monitoring**
- Monitoring Programs
- Monitoring Equipment
- Counting Statistics

**Radiological Protection & Control**
- ALARA Concept
- Exposure Control Techniques
- Shielding Design
- Case Studies: Shielding Applications
- Class Exercise: Shielding Design
- Transporting Radioactive Packages
- Respiratory Protection
- Contamination Control

**Health Physics Surveys**
- Field Monitoring
- Monitoring Techniques

**Radioactive Waste**
- Sources
- Principles of Managing Radioactive Waste
- Processing Techniques
- Long-term Storage

**Radiation Accident Safety**
- Classification
- Accident Phases
- Emergency Planning & Response
- Documentation
- Case Studies: Accidents
- Public Relations

**Legal Aspects of Radiation Safety**
- Radiation Litigation
- Probability of Causation Concept
- Records
- Professional Competence

**Oversight of Radiation Safety Programs**
- Elements of Effective HP Programs
- Signals that a Program Appraisal is Needed
- Unique Characteristics of Radiation Safety Programs
- Guidance on Organizing & Conducting Appraisals
- Effects on Human Organ Systems
- Whole-Body Effects in Humans

**Standards & Regulations**
- Regulatory/Advisory Bodies
- Types of Standards
- Bases for Standards
- NRC Regulations & Regulatory Guides