

H S E

HEALTH

SAFETY

ENVIRONMENT



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Principles of Radiation Protection

Duration: 5 Days

Introduction:

This course covers theory, detection, health effects, and regulation of ionizing radiation. Particular emphasis is on compliance with federal regulations in the occupational setting. Upon completion, students should be able to aid in implementation of a

radiation protection programs in an industrial or institutional setting.

Methodology

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

Certificate

BTS attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration.

Who Should Attend?

- Process safety personnel
- Supervisors with safety and health responsibilities.
- Health and safety committee members
- Facility personnel who are involved in implementing standards for safety instrumented systems
- Worker

Course Objectives:

- Differentiate between ionizing and nonionizing radiation.
- Describe the different types of ionizing radiation.
- Describe the health effects of differing dose ranges of ionizing radiation.
- Perform basic dosage calculations for exposures to ionizing radiation.
- Demonstrate familiarity with different methods of evaluating radiation hazards.
- Implement basic control measures for limiting exposure to ionizing radiation.
- Locate appropriate NRC and OSHA exposure limits.
- Demonstrate familiarity with regulations for the transport and disposal of low level radioactive waste.

Course Outline:

DAY 1

Radiation Physics:

- Atomic structure
- Electromagnetic radiation
- Particulate radiation
- Ionizing vs. nonionizing radiation
- Sources of ionizing radiation
- Interaction of radiation with matter

DAY 2

Radiation Dosage:

- Measures of activity
- Measures of absorbed dose
- Internal vs. external exposures
- Health effects: acute
- Health effects: chronic
- Health effects: genetic

DAY 3

Assessment of Radiation Hazards:

- GeigerMuller counter
- Scintillation detectors
- Measurement of dose rates
- Personal dosimetry
- Monitoring for contamination

DAY 4

Radiation in the workplace:

- Radiation safety programs
- Training
- Personnel monitoring
- Personal protective equipment
- Procedural controls

DAY 5

Shipping, Storage and Disposal:

- Transportation
- Storage
- Disposal
- Regulatory considerations