



GP-101

# Principles of Radiation Detection



## DESCRIPTION

This 2-day course covers the complete range of radiation detection principles from sources of radioactive materials to advanced radiation detection applications and everything in between. This is a concentrated, concise, fast-paced course that includes basic physics and practical implications for all aspects of radiation measurements. This course is not a hardware or software operations course. The course is entirely in lecture format.

## HOW YOU WILL BENEFIT

Attendees who complete this course will gain a thorough understanding of all of the fundamental processes which contribute to the detection and analysis of radioactive materials. This knowledge will allow the attendee to understand the basic operation of various radiation detection systems. Managers and supervisors benefit from the assurance that the technologist has a thorough working understanding of the fundamental principles that guide successful radiation detection activities.

## WHO SHOULD ATTEND

New technologists or supervisory personnel who need to gain a thorough understanding of radioactive decay, radiation emissions, radiation detection technologies, and practical applications. This course is also suitable for experienced technologists desiring a fundamentals refresher.

## COURSE CONTENT

- Basic Radiation Physics
- Radiation Interaction with Matter
- Types of Radioactive Material and Dose
- Radioactive Decay Data
- Gas-filled Detectors
- Scintillation Detectors
- Semiconductor Detectors
- Typical Features in Gamma Spectra
- Introduction to Gamma Spectroscopy
- Introduction to Alpha Spectroscopy
- Introduction to Alpha/Beta Activity Measurements

## PREREQUISITES

There are no specific prerequisites for this course, though attendees will derive more benefit from this course if they have a basic understanding of atomic structure, radiation, and their own facility operations involving radioactivity measurements.