



Fundamentals of Nuclear Forensic Science

Course Description

Nuclear Forensics is one of the newest areas of science. The focus is on how the use of isotopic metrology can be applied to a diversity of situations. Recent seizures of illicit nuclear materials in Europe have spawned renewed concerns over the possible use of radioactive materials in weapons of mass destruction. Nuclear countermeasures depend heavily on various nuclear detection techniques. This course utilizes open discussions to highlight significant areas of nuclear development applied to Nuclear Forensics.

How You'll Benefit from This Course

Many in both undergraduate and graduate studies have not had a great deal of formal academic training in the fundamentals of Actinide/Nuclear Chemistry. There is an urgent need for formal education on both nuclear and radiochemical concepts. In the past, many learning opportunities at nuclear sites have consisted of on the job training as well as safety related training. This training does fulfill its intended purpose.



In this course you will:

- Consult with seasoned experts on your separations problems and challenges
- Develop a knowledge of Nuclear/ Radiochemistry principles needed for decision making in the nuclear forensic arena
- Better understand which instrument techniques meet a specific radioanalytical need
- Receive references to deepen your understanding of nuclear concepts and fundamentals
- Learn methods of optimizing nuclear forensic operations

Key Topics You'll Learn About

- Fundamental Principles of Trans-Uranium Elements
- Fundamental Principles of Fission Products
- Fundamental Principles of Non-Destructive Assay
- Fundamental Principles of Neutron Activation Analysis
- Fundamental Principles of Alpha/Gamma Spec
- Fundamental Principles of Neutron Counting
- Fundamental Principles of Portal Counting
- Fundamental Principles of Liquid Scintillation Counting
- Fundamental Principles of Gas Flow Proportional Counting
- Best Methods and Strategies for Separation Chemistry
- Making Reliable & High Quality Measurements in Nuclear Forensic
- Fundamental Principles of Contamination Control
- Fundamental Principles of Reporting of Results



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