



|                                 |  |
|---------------------------------|--|
| <b>Course Title</b>             | <b>Course on Radioisotopes Technology (CRT)</b>  |
| <b>Duration</b>                 | Face to face: 20 days (160 hours); 8:00 – 5:00 pm<br>Online: 160 hours typically spread in 8 weeks   |
| <b>Target Participant</b>       | For new PNRI employees and other interested individuals who are holders of a bachelor's degree in physical/biological science or engineering.<br>A minimum of ten (10) participants is required to push through with the course.<br>A maximum of thirty (30) participants will be accepted.  |
| <b>Pre-requisite</b>            | A background on algebra, trigonometry, introductory calculus, general biology, chemistry and physics subjects.   |
| <b>Goal</b>                     | To acquaint new PNRI employees and other interested individuals with the advantageous uses and applications of radioisotopes so that they may be able to incorporate these ideas in their present or future activities.  |
| <b>Objectives</b>               | At the end of this course, participants are expected to: <ol style="list-style-type: none"><li>1. Describe the structure of the atomic nucleus and explain the nature of radioactivity.</li><li>2. Differentiate the types of ionizing radiation and how they interact with matter.</li><li>3. Identify different sources of ionizing radiation.</li><li>4. Explain the basic principles of radiation protection.</li><li>5. Discuss safety and security issues associated with the use of radioactive materials.</li><li>6. Be acquainted with the application of radioisotopes in agriculture, medicine, industry and research studies.</li><li>7. Be acquainted with different radioisotope/ nuclear techniques and the concepts behind them.</li><li>8. Investigate, analyze and/or propose an activity involving applications of radioisotopes.</li></ol> |
| <b>Nature and Scope</b>         | This course will consist of lectures, exercises, a workshop and examinations. The participant's performance in the course will be evaluated through the following: <ol style="list-style-type: none"><li>1. Examinations (55%)</li><li>2. Case study incorporating the use of radiation technology (30%)</li><li>3. Practical exercises (10%)</li><li>4. Attendance (5%)</li></ol><br>A certificate of completion will be issued to each participant who obtains an overall grade of at least 75%.   |
| <b>Application Requirements</b> | (1) NTC Online Application; (2) Recommendation letter to attend the course from Supervisor; (3) Training Fee of PhP 15,000.00 (for non-PNRI employee)  |



**Course  
Content**

Basic Nuclear Physics  
Nuclear Reactions  
Radioactivity and Radiation  
Quantities and Units in Radiation Protection  
Exercise on Nuclide Chart and Nuclear Data  
Interaction of Radiation with Matter  
Radiation Detection and Measuring Instruments  
Experiment on Characteristic of GM Detector  
Biological Effects of Ionizing Radiation  
Basic Radiation Chemistry  
Experiment on Statistics of Counting  
Basic Principles of Radiation Protection  
The PNRI Regulatory Function  
Radiation Control and Handling Practices  
Radiation Shielding  
Experiment: Absorption of Gamma Radiation  
Security of Radiation Sources  
Safe Transport of Radioactive Materials  
Safe Transport of Radioactive Materials  
Radiation Monitoring  
Exercise: Radiological Survey of a Radiation Facility  
Radioactive Waste Management Practices  
Emergency Planning, Preparedness, Procedures and Response  
Exercise on Emergency Drill  
Radioisotopes in Agriculture  
Radioisotopes in Geological Studies  
X-ray Fluorescence  
Experiment on X-ray Fluorescence  
Food Irradiation  
Radioisotopes in Medicine  
Radioisotopes in Environmental Research  
Liquid Scintillation Counting  
Experiment on Liquid Scintillation Counting  
Radiation Processing  
Radioisotopes in Industry  
Gamma Spectrometry  
Experiment on Gamma Spectrometry  
Neutron Interactions  
Experiment: Neutron Activation and Half-life Determination  
Presentation of Case Study  
Tour of PNRI Facilities

**CONTACT US**

**TO APPLY FOR A  
COURSE, VISIT:**