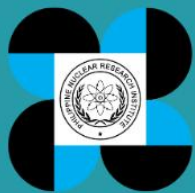


<b>Course Title</b>	<b>Course on Nuclear Technology (CNT)</b>
<b>Duration</b>	Face-to-Face: 10 days (120 hours) Online: 120 hours, typically spread over four weeks
<b>Target Participant</b>	For holders of a bachelor's degree in engineering/physical sciences. Preference will be given to applicants teaching engineering subjects, chemistry, and/or physics or those engaged in research whose participation shall be endorsed by their respective offices.  At least ten (10) participants are required to push through with the course. A maximum of thirty (30) participants will be accepted.
<b>Pre-requisite</b>	A background in algebra, trigonometry, introductory calculus, general biology, chemistry, and physics subjects.
<b>Goal</b>	To provide prospective nuclear science instructors and/or University researchers with sufficient background on the fundamentals of nuclear science and selected techniques of using radioactive materials and nuclear instruments, which could serve as preparation for more advanced/ specialized courses in this field.
<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. Have an overview of the application of nuclear science and technology, agriculture, medicine, industry, and research studies.</li> <li>4. Explain the role of nuclear energy in power generation.</li> <li>5. Be familiar with the basic principles of radiation protection.</li> <li>6. Be acquainted with different nuclear techniques and the concepts behind them.</li> <li>7. Investigate, analyze, and/or propose an activity involving nuclear science and technology applications.</li> </ol>
<b>Nature and Scope</b>	This course will consist of lectures, exercises, a workshop, and examinations. The staff of the Nuclear Training Center (NTC), PNRI lecturers guest lecturers will conduct the course. The participant's performance in the course will be evaluated through the following: <ol style="list-style-type: none"> <li>1. Quizzes (35%)</li> <li>2. A pre-and post-test to be given before and after the lectures (Post-Test – 10%)</li> <li>3. Practical exercises (30%)</li> <li>4. Development and presentation of a case study incorporating nuclear technology topics (20%)</li> <li>5. Attendance (5%)</li> </ol> A certificate of satisfactory completion will be issued to each participant who demonstrates satisfactory knowledge and skills of the subject matter presented.
<b>Application Requirements</b>	(1) NTC Online Course Application; (2) Recommendation Letter to attend the course from Supervisor/ Endorsement from University/College President (3) Transcript of Records (4) 2X2 ID picture



**Course Content**

**Lectures:**

1. Overview of Nuclear Science and Technology Application
2. Nuclear Energy for Power Generation
3. Concept of Case Study
4. Basic Nuclear Physics
5. Nuclear Reactions
6. Radioactivity and Radiation I and II
7. Quantities and Units in Radiation Protection
8. NTC Laboratory Rules
9. Interaction of Radiation with Matter
10. Radiation Detection and Measuring Instruments
11. Statistics of Counting
12. Biological Effects of Ionizing Radiation
13. Basic Principles of Radiation Protection
14. Radiation Control and Handling Practices (
15. Gamma Spectrometry
16. Nuclear Instrumentation for Gamma Spectrometry
17. Neutron Sources
18. Neutron Interactions
19. Radioisotope for Environmental Applications
20. Radiation Processing of Natural Polymers
21. Radioisotope Production
22. Radioisotopes in Industry
23. Nuclear Analytical Techniques

**Experiments:**

1. Nuclide Chart and Nuclear Data
2. Characteristics of GM Detector and Statistics of Counting
3. Radiological Survey of a Radiation Facility
4. Gamma Spectrometry
5. Neutron Interactions
6. Nuclear Analytical Techniques

**Other Activities:**

1. Pre and Post Tests
2. Case Study
3. Tour of PNRI facilities

To apply for a course,  
scan me



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