

## Report

**Title:** RSO Certification Course for Nucleonic Gauges and Well Logging Applications (NG-215)

**Venue:** Amity University Uttar Pradesh, Noida Campus, India (*G06, B Block, Amity Institute of Nuclear Science and Technology*).

**Date:** Oct 6 - 13, 2025

**Organised by:** Amity Institute of Nuclear Science and Technology in association with Radiological Physics & Advisory Division (RP&AD), Bhabha Atomic Research Centre (BARC), Mumbai

**Funds:** Funds generated from collected registration amount (12000+18% GST/person). Registration amount collected: Rs.4,08,000/- +18% GST for 34 participants

**No of participants:** 37 (34+3 reappear)

**Details about RSO certification course:** The ionizing radiation has wide variety of peaceful applications in industry, medicine, agriculture and research. In industry, several physical parameters are determined by using nucleonic gauges (NGs) such as ionizing radiation gauging devices (IRGDs) containing sources of ionizing radiation, i.e. charged particles – alpha & beta rays, gamma rays, X-rays, and neutrons. IRGDs/NGs are used for online industrial process control and quality control parameters. These Ionizing Radiation Gauging Devices (IRGDs)/Nucleonic gauges (NGs) use radioactive sources that, despite having low activity, pose significant radiological hazards due to their long half-lives, if not handled properly. This necessitates well-structured training programs to ensure radiation safety and physical security during usage, transport, and storage of such sources. The course aims to enhance knowledge and build capacity among professionals to function as certified Radiological Safety Officers (RSOs) in compliance with regulatory norms. This course is highly specialized and is primarily targeted at industry professionals from organizations utilizing **Ionizing Radiation Gauging Devices/nucleonic gauges and well logging applications**.

2<sup>nd</sup> batch of 'RSO Certification Course for Nucleonic Gauges and Well Logging Applications' was conducted in collaboration with Radiological Physics & Advisory Division (RP&AD), Bhabha Atomic Research Centre (BARC) at Amity University Uttar Pradesh, Noida campus during 6-13 Oct 2025. This RSO certification course is a paid course. A total of 34 candidates enrolled for the above mentioned RSO certification course. Participants were from various industries such as JASCH GAUGING TECHNOLOGIES LIMITED, JSW Steel Coated Products Ltd, GATES India Private Ltd., UltraTech Cement Ltd., Hindustan Copper Limited, JK Cement Works, Arora Iron & Steel, HPCL, Maintenance Deptt., Sri Sarvaraya Sugars Ltd, Mining Associates Pvt Ltd., International Packaging product Private Limited, Bharathi Cement Corp. Pvt. Ltd., AKD Geomining Solutions, (OPC) Pvt Ltd., The Sirpur Paper Mills Limited, Jindal, Nepa limited. There were 3 candidates from previous batch of the above-mentioned course who were present in the day of examination as they could not complete the course successfully.

### **Objective of RSO certification course**

- Imparting training to personnel for enhancing their knowledge to function as Radiological Safety Officers.

### **Invited Experts:**

- ✓ Dr. H. J. Pant, Former Outstanding Scientist and Head of the Isotope and Radiation Application Division, Bhabha Atomic Research Centre, Trombay, Mumbai

### **Subject experts from Amity University Uttar Pradesh:**

- ✓ Dr. Alpana Goel, Director & Head, AINST, Amity University Uttar Pradesh
- ✓ Ms. Archana Yadav, AP-III, AINST, Amity University Uttar Pradesh
- ✓ Dr. Arpita Datta, AP-III, AINST, Amity University Uttar Pradesh
- ✓ Dr. Sudatta Ray, AP-II, AINST, Amity University Uttar Pradesh
- ✓ Dr. Unnati Gupta, AP-II, AINST, Amity University Uttar Pradesh
- ✓ Dr. Abhishek Yadav, Scientist, AINST, Amity University Uttar Pradesh

The RSO certification course commenced on 6<sup>th</sup> Oct 2025 with a lamp lighting ceremony accompanied by Saraswati Vandana, led by Director & Head, Amity Institute of Nuclear Science and Technology (AINST); faculty members, AINST and the participants. The Director & Head, AINST welcomed all the participants. Before the technical sessions began, all participants introduced themselves.

These 7 days course was comprised of lectures and laboratory demonstration followed by written examination and viva. Lecture topics started from Basics of Radiation Physics, Radiation Detection Measurement, Biological Effects of Ionizing Radiation and Radiation Protection to Transport of Radioactive Material Principle & Applications of NG and Well Logging, Design Safety Standards of NG & Well Logging, various regulatory aspects and Emergency Response Plans and Preparedness.

Following laboratory experiments were demonstrated for the participants to make them aware about various external radiation protection measures during the handling of NG/ IRGDs in the field.

- Verification of variation of intensity of radiation with the inverse of the square of distance.
- Radiation absorption characteristics and HVL/TVL measurement.

Written examination and viva were conducted by officials from RP&AD, BARC on the last day (13<sup>th</sup> Oct 2025) of the RSO certification course. A total of 19 candidates out of 37 (34+3 re appear candidates) (50%) qualified for the RSO course certificate.

Later, BARC officialise sent the list of successful and unsuccessful candidates by email. They also stated that the certificate would be sent to the candidate by post. Google form was circulated among the participants to collect their feedback.

### **Achieved Outcomes of RSO certification course: -**

- Imparted training to participants for enhancing their knowledge to work as Radiological Safety Officers.
- 50% participants of the RSO certification course received the certificate

### **Other achieved outcomes could be**

- Revenue generation for AINST, AUUP.
- Enhanced the possibility of future collaboration with the RP & AD, BARC
- Possibility for approval of advanced level RSO certification course.
- Increased the visibility of the Nuclear Security Education Laboratory and AINST
- Possibility of collaboration with reputed Industries from where the participants had joined.

# Program Schedule



Government of India  
Bhabha Atomic Research Centre  
Medical Group  
Radiological Physics & Advisory Division  
CT&CRS, Anushaktinagar, Mumbai - 400 094



Ref: BARC/RP&AD/NG-215-2025/ 213 /2025

September 26, 2025

**Course Title** : RSO Certification Course for Nucleonic Gauges and Well Logging Applications  
**Course Number** : RSO-NG-215  
**Duration** : October 6 - 13, 2025  
**Venue** : AINST, Amity University, Noida, Uttar Pradesh  
**Convener, Examinations** : T. Palani Selvam, RP&AD, BARC

Date/Time	10:00 - 11:00	11:30 - 12:30	12:30 - 13:30	14:30 - 15:30	16:00 - 17:00
<b>Monday</b> 06/10/2025	Course Registration & Inauguration (AINST)	Basic Radiation Physics (Prof. Alpana Goel, AINST)	Interaction of Radiation with Matter (L1) (Ms. Archana Yadav, AINST)	Interaction of Radiation with Matter (L2) (Ms. Archana Yadav, AINST)	Radiation Quantities & Units (Dr. Unnati Gupta, AINST)
<b>Tuesday</b> 07/10/2025	Biological Effects of Ionizing Radiation (Dr. Arpita Datta, AINST)	Operational Radiation Exposure Limits (Dr. Unnati Gupta, AINST)	Principles of Radiation Detectors (L1) (Dr. Sudatta Ray, AINST)	Principles of Radiation Detectors (L2) (Dr. Abhishek Yadav, AINST)	<b>Discussion - 1</b>
<b>Wednesday</b> 08/10/2025	Radiation Monitoring Instruments & Measurements (Dr. Abhishek Yadav, AINST)	Radiation Hazard Evaluation & Control (L1) (Ms. Archana Yadav, AINST)	Radiation Hazard Evaluation & Control (L2) (Dr. Arpita Datta, AINST)	Radiation Hazard Evaluation & Control (L3) (Dr. Arpita Datta, AINST)	<b>Discussion - 2</b>
<b>Thursday</b> 09/10/2025	Principle & Applications of NG and Well Logging (L1) (Dr. H. J. Pant, Ex. BARC)	Principle & Applications of NG and Well Logging (L2) (Dr. H. J. Pant, Ex. BARC)	Design Safety Standards of NG & Well Logging (Dr. H.J Pant)	Transport of Radioactive Material (Ms. Archana Yadav)	<b>Discussion - 3</b>
<b>Friday</b> 10/10/2025	Principle & Applications of NG and Well Logging (L3) (Dr. H. J. Pant, Ex. BARC)	Principle & Applications of NG and Well Logging (L4) (Dr. H. J. Pant, Ex. BARC)	Regulatory Aspects of NGs and Well Logging (Dr. H.J Pant)	Radiation Accidents, Case studies and Lessons Learnt (Dr. Sudatta Ray)	<b>Discussion - 4</b>
<b>Saturday</b> 11/10/2025	<b>Practical Demonstrations Batch-1</b> (Dr. Sudatta Ray/Dr. Unnati Gupta, AINST)		<b>Practical Demonstrations Batch-2</b> (Dr. Sudatta Ray/Dr. Unnati Gupta, AINST)		Emergency Response Plans and Preparedness (Dr. Arpita Datta)
<b>Monday</b> 13/10/2025	<b>Written Examination (09 – 10:30 h)</b>		<b>Assessment on Practical</b>		

**Tea Break:** 11:00 – 11:30 h & 15:30 - 16:00 h

**Lunch Break:** 13:30 – 14:30 h

**Forwarded:**

T. Palani Selvam 26/09/2025

**Distribution:**

Faculty Members/Course Coordinator, Amity University, Noida

**Approved**

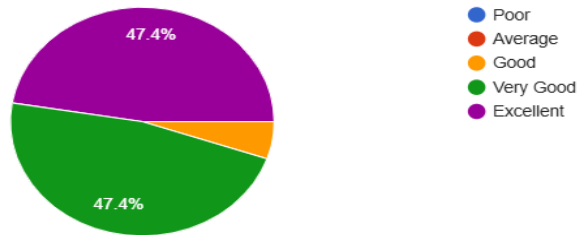
(B. K. Sapra) 26/09/2025

डॉ. (श्रीमती) (B. K. Sapra) B. K. Sapra  
सह निदेशक, आयुर्विज्ञान विभाग / Associate Director, Medical Group,  
अमिटी, इंडिया-यूनिवर्सिटी नोएडा एवं वाराणसी-201321  
Head, Radiological Physics & Advisory Division  
भारत सरकार / Government of India  
भारत परमाणु अनुसंधान केंद्र / Bhabha Atomic Research Centre  
सी. टी. एवं सी. आर. एन भवन / CT & CRS Bldg.,  
अनुसंधान नगर, मुंबई / Anushaktinagar, Mumbai - 400094.

## Feedback

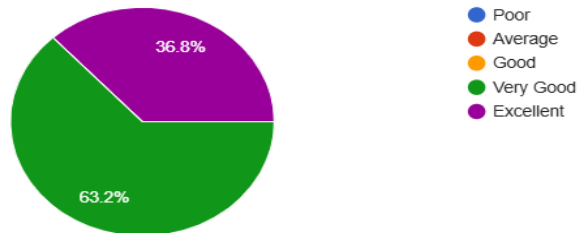
Were the lectures delivered met the expectations and learning outcomes?

19 responses



Were the course content/material of appropriate level and sufficient for the expected learning?

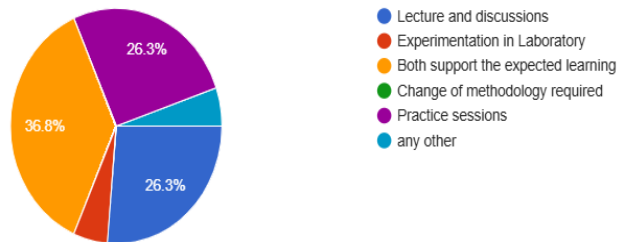
19 responses



Which approach do you like the most?

19 responses

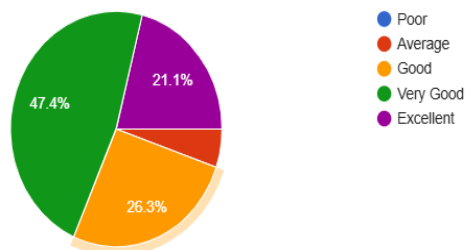
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Did the laboratory experiments meet your expectations and expected learning?

19 responses

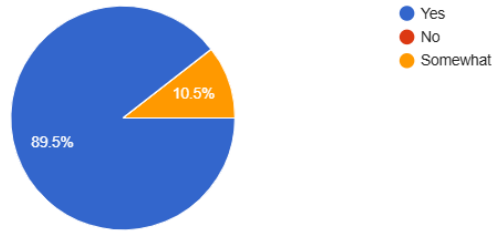
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Were the training materials, PPT and handouts helpful?

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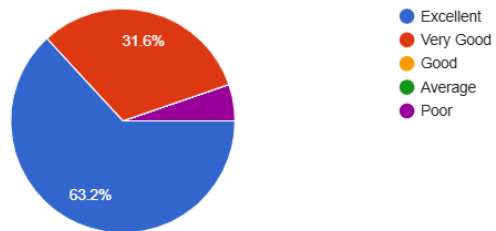
19 responses



How would you rate the knowledge and effectiveness of the instructors?

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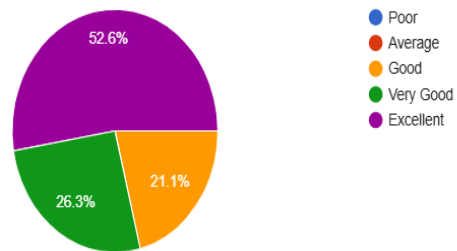
19 responses



Please provide your rating for local hospitality provided at Amity University Uttar Pradesh, Noida

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19 responses



Pic





