

TRAINING COURSE ON RADIATION SAFETY ASPECTS OF NUCLEONIC GAUGES (NG)

Nucleonic gauges find many non-destructive applications in industry for in situ determination of thickness, density and composition of materials, measurement and control of processed materials in closed containers, analysis of ores and minerals, well logging and in agricultural field for determination of moisture content in the soil etc. Under the Radiation Protection Rules (RPR), 2004, it is mandatory for the institutions working with radioactive material, in any physical form, to have or appoint a Radiation Safety Officer (RSO) who can take care and ensure the radiological safety in application of NG. A person who undergoes and qualifies training course on **Radiation Safety Aspects of Nucleonic Gauges** conducted by Radiological Physics & Advisory Division (RP & AD), Bhabha Atomic Research Centre (BARC), Mumbai, becomes eligible to work as RSO in sponsoring institution. Earlier this training used to be organized and conducted by RP&AD. Now it has been outsourced to a NGO known as Indian Association for Radiation Protection (IARP), (a registered association of scientists working in the field of radiation safety). Since 2006, IARP is organizing the training in collaboration with RP&AD. It is a 9-day (working days, including Saturday & Sunday). Training course on Radiation Safety Aspects of Nucleonic Gauges (NG) provide necessary training to the sponsored personnel for the purpose.

Eligibility: The candidate should possess Degree in science or Degree/Diploma in engineering. Sponsored candidates are given preference for admission to the course.

Duration: It is a 9-day (working days, including Saturday & Sunday) training course. It is organized at RP&AD, CT&CRS, Anushaktinagar, Mumbai, where about 30-35 candidates are admitted in. There are 18 lectures on different topics related to radiation safety and two practical demonstrations.

Frequency: Training programme are conducted on need-basis by 'Indian Association for Radiation Protection' (IARP) (a registered association of scientists working in the field of radiation safety), in collaboration with 'Radiological Physics & Advisory Division' (RP&AD), Bhabha Atomic Research Centre (BARC). It is normally scheduled when sufficient applications (about 30-35) are received.

Venue: Training programme is conducted normally at Radiological Physics & Advisory Division (RP&AD), Centre for Training & Certification in Radiological Safety (CT & CRS), Anushaktinagar, Mumbai-400 094. *Depending upon the availability of facilities and sufficient number of participants, this course can be arranged at user institution also.*

Syllabus:

A. Lectures

1. Basic Radiation Physics (1 lecture)
2. Interaction of Ionising Radiation with Matter (1 lecture)

3. Radiation Quantities & Units	(1 lecture)
4. Principles of Radiation Detection	(2 lectures)
5. Radiation Monitoring Instruments & Measurements	(1 lecture)
6. Biological Effects of Ionising Radiation	(1 lecture)
7. Operational Limits	(1 lecture)
8. Radiation Hazard Evaluation & Control	(3 lectures)
9. Types of Nucleonic Gauges	(2 lectures)
10. Safety Standards for Design of Nucleonic Gauges	(1 lecture)
11. Regulatory Aspects of Radiation Safety	(2 lectures)
12. Unusual Occurrences in Nucleonic Gauges	(1 lecture)
13. Procedure of Trans of Radioactive Sources	(1 lecture)

B. Discussions (On Radiological Safety)

C. Practical Demonstrations :

1. Radiation Detectors, Properties of Radiation & calibration tests
2. Types of Nucleonic Gauges

Examination: Written and viva-voce examinations will be conducted towards the end of the course. The criteria for qualifying the examination is scoring a minimum 40% marks in each (written and viva-voce) and 50% in aggregate.

Course fee: The course fee is Rs. 7500/- (Rupees seven thousand five hundred only) per person (excluding Service Tax). Every participant is to pay course fee and Service tax together. Therefore the total sum that each participant has to pay is Rs 8273/- (Eight thousand two hundred seventy three only). It is to be paid by Demand Draft, issued in favour of 'IARP Training Course', payable at Mumbai.

How to apply for admission in the course:

The application format and other details can be achieved from **Course Coordinator, IARP Training Course, C/O RPAD, CT&CRS, Anushaktinagar, Mumbai – 400 094**, on request. Duly filled up application be submitted to the course coordinator. While forwarding the application please ensure that the application is complete in following respects:

1. Attested copies of the certificates in support of educational qualification are enclosed.
2. Application is duly signed and stamped by the sponsoring authority.
3. Fee for training is enclosed with.

(Incomplete applications would not be considered for admission)

ETG/NG/1

Government of India
Bhabha Atomic Research Centre
RADIOLOGICAL PHYSICS & ADVISORY DIVISION
CT & CRS, Anushaktinagar, Mumbai-400 094.

Fax: 25519209

**APPLICATION FOR THE TRAINING COURSE ON
RADIATION SAFETY ASPECTS OF NUCLEONIC GAUGES**

1. Name in full :
(in block letters)

2. Date of birth :

3. Father's Name :

4. Office address :

Affix recent ID
card size
photograph

PIN :

Fax Number ;

e-mail address:

6. Educational qualification (Use additional sheets if required. Attested copies of relevant certificates to be attached)

Degree/Diploma examinations passed	Name of University /Institution	Year	Class & Marks	Subjects

6. Experience in handling Nucleonic Gauges: ----- Years.

8. Details of training in radiation safety :
(if attended in the past)

9. Personnel monitoring services No., if any :

10. Particulars of nucleonic gauges in use (existing/proposed)

Make & Model Of gauge	Radiation Sources	Activity	No. of Sources	Existing Proposed

11. List of persons already trained in the above course

Name	Year of training	Details of present duties

Certified that above information is correct to the best of my knowledge

Place :

Date:

Signature of candidate

Shri/Smt./Kum.----- is an employee of this institution. On successful completion of the course , he/she will be provided with all the facilities to carry out his/her duties as Radiological Safety Officer.

Signature of the sponsoring authority

Name, designation & address of sponsoring authority

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Please note: Enclose one more copy of the photograph of the candidate with the application Post the duly filled application at the address - `Course Coordinator, IARP, C/O RP&AD, CT&CRS, Anushaktinagar, Mumbai – 400 094.
(Incomplete applications would not be considered for admission)