Academic Programs

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Certification Courses on Radiation Safety

Valedictory of 59th Dip.R.P. course and inauguration of 60th DipRP course. Address by Dr. Ajit Kumar Mohanty, Director, BARC. On the dias: Dr. S. D. Sharma, Head, MPS, RP&AD, Dr. D. K. Aswal, Director, HS&E Group, BARC and Dr. B. K. Sapra, Head, RP&AD (from left to right).

Dr. B. K. Sapra
bsapra@barc.gov.in

Introduction

Ionising radiation and radioisotopes are extensively used in the field of medicine, industry, agriculture and research for the societal benefit. Atomic Energy Act, 1962 by the Government of India, empowers Department of Atomic Energy (DAE) to promote safe use of ionizing radiation and radioisotopes for peaceful purposes. Hence, it is necessary that radiation sources are handled by the trained personnel with adequate knowledge in radiation safety and the certified personnel will ensure radiation safety for members of public, radiation workers, patients, and the environment. Atomic Energy Regulatory Board (AERB) is responsible to ensure the use of ionising radiation and nuclear energy in India does not cause undue risk to the health of people and the environment. Radiation Protection Rules (2004) and Safety Standards and Codes published by AERB for various applications emphasizes the mandatory requirement of trained and certified personnel in institutions handing radioisotopes.

Radiological Physics and Advisory Division (RP&AD), BARC is authorized by AERB for conducting various certification courses on radiation safety related to medical, industrial and research applications of ionizing radiation. The syllabi of various radiation safety training courses were approved by AERB in 2012 (AERB/RF/Training-Syllabi/2012). Recently, the syllabi haven been revised in 2021 with an addition of few new courses. The syllabi describe the eligibility criteria, course content, course duration, examination pattern, passing criteria and reappearance for examination. RP&AD also conducts one-year post M.Sc. Diploma in Radiological Physics under the aegis of HBNI.

Post M. Sc. (Physics) Diploma in Radiological Physics

RP&AD is conducting the one-year post M.Sc. Diploma in Radiological Physics from 1962. Currently, 60th course is underway and will be completed by September 2023. Till 2006, this course was affiliated to University of Bombay and from 2007 it is conducted under the aegis of Homi Bhabha National Institute (HBNI), Mumbai. So far about 1096 candidates have successfully completed the course and majority of them are performing exceptionally well in India and abroad. Total allocated seat for this course is 25 (non-sponsored) plus 5 (sponsored).

The eligibility for admission to Dip.R.P. course is M.Sc. (Physics) with aggregate marks not less than 60%. The candidate should also have undergone B. Sc. course majoring in Physics and the aggregate marks shall not be less than 60%. The selection process of non-sponsored candidate included two steps, (i) Written test for screening, and (ii) Interview. Sponsored candidates are selected by interview only. There is no reservation of seats in admission, however, OBC, SC/ST, physically challenged and sponsored candidates are given relaxation in upper age limit by 3, 5, 10 and 10 years, respectively. Non-sponsored candidates are paid a monthly stipend of Rs. 25,000/- for 12 months whereas sponsoring institute takes care of the expenditures of sponsored candidates.

Dip.R.P. is an important programme of DAE to provide adequately qualified manpower for various institutions/ facilities in the country including AERB and DAE establishments. The syllabus of Dip.R.P. course consists of

topics related to medical, industry and research applications of radiation. The course consists of about 430 lectures and 32 laboratory exercises. Field training is provided at TMH, RMC, AERB and various Divisions of BARC over the eight weeks. The facilities available at BARC, experienced faculty of DAE and therapeutic facilities available at TMC provide a model support system for the Dip.R.P. course. The knowledge assessment is done through written examination and viva-voce at the end of each semester (total two semesters). The knowledge acquired during 3 weeks visit to clinical facilities of RMC and TMC is evaluated through the student seminar. This Diploma course is perceived as a benchmark by medical physics community in the country and it has produced many eminent medical physicists practicing in India and abroad.

The Dip.R.P. qualified candidates are eligible to work as clinical medical physicist in the hospital on successful completion of one-year medical physics internship at AERB-recognized radiotherapy centres in the country. These candidates are also eligible for nomination as Radiological Safety Officer (RSO) in medical, industrial and research institutions. However, the working as clinical medical physicist, candidates shall undergo one-year medical physics internship. Over the years, there has been an increase in the number of medical radiation facilities in the country and hence there is an increased demand of Dip.R.P. qualified candidates.

Certification Courses on Radiation Safety

RP&AD conducts various short-term certification courses on radiation safety that are mandated by AERB either by itself or in association with governmental or non-governmental organizations for personnel from medical, industrial and research institutions. RP&AD also conducts certification courses for different government agencies such as Ministry of Defence, Ministry of Home Affairs and Customs House and Ports. For all these courses, the certification is done by RP&AD through evaluation as stipulated by AERB. The list of courses approved by AERB/BSC and duration of each course is given in Table 1. During the period 2017-2022, 209 courses were conducted and 5168 candidates were certified.

Fig.1: 59th & 60th batch Dip.R.P. course students with Dr. Ajit Kumar Mohanty, Director, BARC.

Sr. No.	Title of certification courses on radiation safety	Duration
1.	RSO Certification in Radiation Processing Facilities (Gamma and Electron Beam)	6 weeks
2.	Radiation Safety Certification of Operators for Radiation Processing Facilities (Gamma and Electron)	3 weeks
3.	Training cum Certification Course on Radiation Safety for Industrial Radiographer	9 days
4.	RSO Certification for Nucleonic Gauges and Well Logging Applications	7 days
5.	RSO Certification for Radiological Calibration Laboratories (RSO-RCL) - Radiation Monitoring Instruments and Personnel Monitoring Badges	10 days
6.	RSO Certification for Gamma Irradiation Chamber (Category - I Irradiator)	7 days
7.	RSO Certification for Research, Radiotracer and Column Scanning Applications of Ionizing Radiation	7 days
8.	RSO Certification for Scanning Facilities	7 days
[a]9.	RSO - NM Certification for DMRIT /M.Sc. (NMT)/DRM Nuclear Medicine courses conducted by Universities /Institutions	Only Certification
[a]10.	RSO - Med certification for M.Sc. (Med. Phy.)/DRP Courses conducted by Universities	Only Certification
11.	RSO Certification for Service Engineers/QA Service providers in Diagnostic Radiology (RSO - QADXE)	11 days
12.	Radiation Safety Certification for Service Engineers of Radiotherapy Equipment (RS-SRE)	7 days
13.	RSO Certification for Industries handling Naturally Occurring Radioactive Material (RSO-NORM)	7 days
14.	Radiation Safety Certification for Suppliers of Consumer Products, Analytical Equipment, Small Activity Sources, and Equipment Containing Small Activity of Sources	5 days
15.	RSO Certification for Gas Mantle Manufacturing Facility	5 days
16.	Radiation Safety Certification for Personnel in Medical Cyclotron Facility	4 weeks
[b]17.	RSO Certification for NDRF Personnel	7 days
[b]18.	RSO Certification for Defence Personnel	7 days
[b]19.	Training cum RSO Certification Course on Radiation Safety Aspects of Flash X-ray and Neutron Generator Facilities	10 days

Sr. Nos. 1 – 16 (AERB approved courses)
a : Courses conducted by Universities and RSO certification done by RP&AD.
b : Devised jointly by RP&AD and BARC Safety Council (BSC) and approved by BSC, BARC