

A qualification course in radiation protection for registration of Radiation Protection Supervisor at teaching and research laboratories

Keywords: radiation protection course, radiation protection supervisor, teaching and research laboratory, standard CNEN NN 6.01.

Introduction

In Brazil, several researches use radioactive isotopes, where Occupationally Exposed Individuals (OEIs) are subject to external exposure and internal contamination. Thus, teaching and research laboratories (T&R) must be authorized by the National Nuclear Energy Commission (CNEN) and monitored [1]. According to CNEN Standard NN 6.01, the OEIs must submit an application, in addition to the diploma recognized by the Ministry of Education (MEC) and the proof of a course of 40 hours in Radiation Protection (RP) [2]. In this sense, this abstract aims to present a proposal and experience report of a training course, since there are few offered in the country.

2. Materials and Methods

The course, developed in the State University of West Paraná (UNIOESTE) / Cascavel campus, was offered to teachers and technicians of the Chemistry and Biology courses, and carried out at UNIOESTE's Fine Equipment Laboratory, in 2020. The Laboratory uses a gas chromatograph equipped with a flame ionization detector and an electron capture detector (sealed source of Ni-63).

3. Results and Discussion

The Course during 40 hours (each Module, on average, lasting 5 hours/class). The material was made available in media and printed form. The syllabus was the following: 1. Radiation (Composition and structure of matter and atomic theory; Origin of radiation; Nuclear radiation; Radiation produced by the interaction with matter); 2. Natural and Artificial Sources of Ionizing Radiation; 3. Interaction of Radiation with Matter (Ionization, excitation, Activation and braking radiation; Directly and indirectly ionizing radiation; Interaction of electromagnetic radiation, directly ionizing radiation and electrons with matter); 4. Biological effects of radiation (Cell structure and metabolism; Interaction of radiation with biological tissue; Tissue radiosensitivity; Biological effects); 5. Radiological quantities (Conceptual evolution of magnitudes; Procedures for defining radiological quantities; Relationship between the quantities; New operational quantities); 6. Radiation detectors (Operating principles; Detectors using photographic emulsions; Thermoluminescent detectors); 7. Notions of RP (Principles; The RP plan; RP service activities; Practical rules for RP); 8. CNEN Standards (Standard NN 6.01; 6.02; 7.01). After the training, individuals were registered for the preparation, use and handling of radioactive sources and as Supervisor of RP by CNEN. With this certification, the professional will have a registration valid for 05 years in low-risk facilities.

4. Conclusion.

It is understood that the course is of great importance for T&R that use radioactive material, and can be applied in all regions of Brazil, since there are few courses offered in the country. That is why it is important to disseminate and apply these courses throughout the country.

References

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Session Classification: Session 11. Education and training in occupational radiation protection

Track Classification: 12. Education and training in occupational radiation protection