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Version 1

Field: RADIATION PROTECTION

Topic: REGULATION OF RADIATION PROTECTION IN MEDICAL APPLICATIONS

Course type	TUTORING
Host institute	Environmental Board Tallinn, Estonia
Co-host institute	North Estonia Medical Centre Tallinn, Estonia
Date	15 January - 9 February 2024
Duration	Four weeks
Working language	English

Objective

This course provides trainees with theoretical background and practical skills in medical applications (radiotherapy, nuclear medicine and diagnostic radiology) as well as the regulatory issues and processes, safety standards and requirements necessary to evaluate and assess the radiation safety of medical installations and radiation protection of staff and patients. The tutees thereby can improve their competences and skills in reviewing, assessing, authorizing and inspecting the related processes, procedures and documentation.

Outline of course content

Regulatory overview

- Interpretation of the European Union (EU) regulations (council directive 97/43/EURATOM) and international (e.g. IAEA) regulation on radiation protection and radiation safety in medicine, with particular emphasis on the implementation of EU Basic Safety Standard (BSS) Directive into the national regulations. Introduction of radiation protection related international regulations for the safety of medical installations and radiation protection of staff and patients.
- Introduction to the Estonian nuclear regulation and regulatory oversight:
  - Introduction of the national regulatory framework, nuclear safety requirements of medical facilities that use ionizing radiation and the related regulatory activities.
  - Overview of radiation safety assessment and related radiation protection on facility level.

Theoretical training

- Classroom lectures on
  - different aspects of medical uses of ionizing radiation in the hospitals;
  - instrumentation and dosimetry quantities in use;
  - dosimetry and Quality Assurance/Quality Control (QA/QC) procedures in radiation medicine;
  - radiation protection aspects and shielding calculations for medical facilities;
  - staffing and training requirements;
  - incidence learning system and prospective risk management;
  - radiation protection related issues of emergency preparedness and response.

Practical work

- On-the-job trainings on
  - radiotherapy workflow process for external beam radiotherapy and brachytherapy;
  - dosimetry and QA/QC procedures of different equipment;
  - guidance and national experiences on facility-level radiation protection (local rules and radiation protection manual), focusing on the Workplace Radiation Protection Rules (WRPR);
  - licensing of medical facilities through discussions with the regulator.

Technical schedule and delivery methods

The course consists of 4 working weeks (i.e. 4 × 5 workdays).

3 working weeks deal with radiation protection issues in radiotherapy, structured as follows:

- **Classroom lectures** will take 2 days with 2 lectures per day (tentatively morning and afternoon sessions with 2 lectures of 90 minutes each, with time allocated for discussions and appropriate breaks).
- **On the job training** to observe the radiotherapy workflow (4 days), dosimetry and QC/QA activities (6 days), and radiation shielding aspects (2 day), including on-site visits.

1 working week are related to radiation protection issues in nuclear medicine and diagnostic radiology, as follows:

- **Classroom lectures** will take 2 days with 2 lectures per day (tentatively morning and afternoon sessions with 2 lectures of 90 minutes each, with time allocated for discussions and appropriate breaks).
- **On the job training** to observe the nuclear medicine and diagnostic radiology workflow (2 days), dosimetry and QC/QA activities (1 days), including on-site visits.
- One-day **visit** to national regulator to discuss the licensing aspects of medical facilities.

Target audience

This course is intended to experts and professionals of Nuclear Regulatory Authorities (NRAs) and Technical Support Organizations (TSOs) having responsibilities in the field of radiation protection and nuclear safety as related to the medical use of ionizing radiation.

Target number of participants: 2

Prerequisites and requirements for participants

Participants should have an adequate level of knowledge in English (at least an 'Independent user' level defined by the CEFR). A university degree with nuclear specialization and at least 2 years of professional experience in functions relevant to the content of the course is also a prerequisite. Relevancy of the course topic in the work and institutionally justified interest in participating will be considered as well as the need and opportunity for filling competence gaps. Efforts are made to ensure gender equality.

Terms of participation

The project is implemented under the European Union (EU) external assistance programme, called the European Instrument for International Nuclear Safety Cooperation (INSC), and aims to support the National Nuclear Regulatory Authorities (NRAs) and their Technical Support Organizations (TSOs) in non-EU countries in strengthening their capabilities with regard to their regulatory tasks and responsibilities in the field of nuclear safety and radiation protection.

Employees of the NRAs or their TSOs in the Beneficiary Countries are eligible for financially supported participation in the T&T courses. Beneficiary Countries of the project are published on the website https://training.ek-cer.hu/.

Costs

Travel and accommodation costs and subsistence allowances (including the international and national travel tickets, shuttle services, insurance and visa costs, per diems) for participants will be covered from the project budget.

Application

Application via the website https://training.ek-cer.hu/, according to the process and deadlines indicated there.

Examination

Technical and linguistic tests will be written as part of the application and selection process to assess the underlying knowledge and preparedness of applicants. Knowledge and development of selected participants will be assessed through technical tests throughout the course.

Work reports will be prepared to allow for progress monitoring and determining the final development through acquisition of knowledge, practical experience and expertise, as well as task completions.

Participants attending the full course will be issued with attendance certificates. Successful participants will receive certificates confirming their knowledge achieved and skills acquired.