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الوكالة الدولية للطاقة الذرية  
国际原子能机构  
International Atomic Energy Agency  
Agence Internationale de l'énergie atomique  
Международное агентство по атомной энергии  
Organismo Internacional de Energía Atómica

National Liaison Officer

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In reply please refer to: RER/9/128-002  
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2014-04-07

**Subject:** Invitation to a Regional Training Course on Assessment of Occupational Exposure Due to External Sources of Radiation, Krakow, Poland, 22-26 September 2014

Dear National Liaison Officer,

I am pleased to invite you to send nominations of suitable candidates to participate in the above-mentioned training course under the framework of TC Project RER/9/128 – Strengthening National Capabilities for Radiological Protection of Workers and Occupational Exposure Control. The purpose of the training course and related information are outlined in the attached Prospectus.

For candidates who are selected by the IAEA, the Agency will cover the cost of return international travel from the home country to Krakow, Poland and provide a stipend for the duration of the training course in line with Agency rules and procedures.

Please submit duly completed Nomination Form for Training Courses by the latest 2 June 2014. Please note that nominations received after the closing date will not be considered.

The completed nomination forms should be submitted to the IAEA online through the Technical Cooperation Department's InTouch system (<http://intouch.iaea.org>). Should this not be possible, forms may be sent to the Programme Management Officer for this project, Sandra Steyskal, through IAEA Official Fax (+43-1-26007) or E-Mail (Official.Mail@iaea.org).

Yours sincerely,

Manase Peter Salema  
Director  
Division for Europe  
Department of Technical Cooperation

Enclosures: Prospectus  
Nomination Form

# International Atomic Energy Agency

## Regional Training Course on Assessment of Occupational Exposure Due to External Sources of Radiation

### PROSPECTUS

<b>Project Number &amp; Title:</b>	RER/9/128 Strengthening National Capabilities for Radiological Protection of Workers and Occupational Exposure Control
<b>Place (City, Country):</b>	Krakow, Poland
<b>Dates:</b>	22-26 September 2014
<b>Deadline for Nominations:</b>	2 June 2014
<b>Organizers:</b>	The International Atomic Energy Agency (IAEA) in collaboration with the Government of Poland through the Institute of Nuclear Physics, Polish Academy of Sciences
<b>Host Country Organizer:</b>	Dr Renata Kopec Laboratory of Individual and Environmental Dosimetry Institute of Nuclear Physics, Polish Academy of Sciences ul. Radzikowskiego 152 31-342 Krakow, Poland Tel.: +48-12-662 8077 Email: Renata.Kopec@ifj.edu.pl
<b>Language:</b>	English
<b>Purpose:</b>	To provide training in fundamental concepts, methods and equipment used for individual monitoring of external radiation, with emphasis on application to occupational radiation protection.
<b>Expected Output(s):</b>	At the end of the training course, participants should: <ul style="list-style-type: none"><li>- Understand the fundamental concepts of external dosimetry, record keeping and data management related to individual monitoring</li><li>- Have acquired basic knowledge of dosimetric quantities recommended for physical, radiological protection and operational purposes</li><li>- Be familiar with monitoring equipment, interpretation of results, calibration, performance requirements and estimation of uncertainty</li><li>- Understand the management and technical requirements of an effective quality assurance programme</li></ul>
<b>Scope and Nature:</b>	The training course will consist of lectures, demonstrations, practical work sessions and exercises, with time left for discussions. Emphasis will be given to fundamental concepts, dosimetric quantities, equipment characteristics, calibration, data analysis and dose assessment methods. Management, administration and quality assurance within an individual monitoring programme will be discussed.

- Background Information:** To assist Member States in the area of occupational radiation protection, the IAEA has published three Safety Guides, which are jointly sponsored by the IAEA and the International Labour Office. These are *Occupational Radiation Protection* (IAEA Safety Standards Series No. RS-G-1.1, 1999), *Assessment of Occupational Exposure Due to Intakes of Radionuclides* (IAEA Safety Standards Series No. RS-G-1.2, 1999) and *Assessment of Occupational Exposure Due to External Sources of Radiation* (IAEA Safety Standards Series No. RS-G-1.3, 1999). The IAEA has also published additional technical information on particular techniques. All these documents provide for a gradual shift of priorities towards the rendering of services aimed at assisting Member States in the practical application of such standards.
- Participation:** The training course is open to 25 participants from Member States in the TC Europe region.
- The target countries are: Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Belarus, Croatia, Cyprus, Czech Republic, Estonia, Georgia, Greece, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Malta, TFYR Macedonia, Montenegro, Moldova, Poland, Romania, Slovakia, Serbia, Tajikistan, Turkey, Ukraine, and Uzbekistan.
- Participants' Qualifications:** The participants should be professional staff responsible for the assessment of occupational exposure due to external sources of radiation as well as managers of occupational monitoring programmes.
- Nomination Procedure:** Nominations should be submitted to the IAEA online through the Technical Cooperation Department's InTouch system (<http://intouch.iaea.org>). Should this not be possible, nominations may be submitted on the standard IAEA Application Form for Training Courses (available on the IAEA website: <http://www.iaea.org/>). Completed forms should be endorsed by relevant national authorities and returned to the Agency through the official channels, i.e. the designated National Liaison Office for IAEA Matters.
- The completed nomination forms should be sent to the Programme Management Officer for this project, Ms Sandra Marie Steyskal, through IAEA Official Fax (+43-1-26007) or E-Mail ([Official.Mail@iaea.org](mailto:Official.Mail@iaea.org)), not later than **2 June 2014**. Nominations received after this date or which have not been routed through the established official channels cannot be considered.
- Administrative and Financial Arrangements:** Nominating Governments will be informed in due course of the names of the candidates who have been selected and will, at that time, be given full details of the procedures to be followed with regard to administrative and financial matters.
- Selected participants from countries eligible to receive technical assistance will be provided with a round trip economy class air ticket from their home countries to Krakow, Poland, and a stipend sufficient to cover the cost of their accommodation, food, and minor incidentals. Shipment of accumulated training course materials to the participants' home countries is not the responsibility of the IAEA.
- The organizers of the training course do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a participant while he/she is travelling to and from or attending the training course, and it is clearly understood that each Government, in nominating participants, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

# **International Atomic Energy Agency**

## **Regional Training Course on Assessment of Occupational Exposure Due to External Sources of Radiation**

### **SYLLABUS**

- I. Introduction**
  - I.1. Requirements of the IAEA Basic Safety Standards
  - I.2. Dosimetric quantities and regulatory limits
  - I.3. Objectives of individual monitoring
  - I.4. Definitions
  
- II. Assessment of exposure from external sources of radiation**
  - II.1. Routine monitoring programmes
    - Frequency of monitoring
    - Reference levels
  - II.2. Dosimetry systems
    - Film dosimeters
    - Luminescence dosimeters
    - Active personal dosimeters
    - Neutron dosimeters
  - II.3. Choice of a dosimetry system
    - Sources of radiation
    - Operational considerations
    - Monitoring of extremities and the lens of the eye
  - II.4. Type testing of personal dosimeters
    - Energy and angular response
    - Other important characteristics
  - II.5. Performance testing of personal dosimeters
    - Performance requirements
    - Estimation of uncertainty
  - II.6. Calibration of personal dosimeters
  - II.7. Interpretation of results
  
- III. Management and administration of individual monitoring programmes**

- III.1. Organizational structure and personnel
- III.2. Laboratory accommodation
- III.3. Customer-related issues
- III.4. Financial considerations
- III.5. Record keeping and reporting

**IV. Quality assurance**

- IV.1. Quality documentation
- IV.2. Equipment and reference material
- IV.3. Measurement tractability and calibration
- IV.4. Calibration and tests methods
- IV.5. Quality records, certificates and reports
- IV.6. Contracting and sub-contracting

**V. International activities in the field of individual monitoring**

- V.1. Standards under preparation
- V.2. Inter-comparison exercises

**VI. Practical exercises**

- VI.1. Calibration of personal dosimeters
- VI.2. Performance verification of personal dosimeters
- VI.3. Management of high dose reading, reporting and recording procedures

**Note: Recommendations issued by ICRP, ICRU, IEC, ISO and other international organizations shall be covered during the lectures as relevant to the topic.**

**IAEA Publications**

IAEA Safety Standard Series, *Occupational Radiation Protection*. No.RS-G-1.1.

IAEA Safety Standard Series, *Assessment of Exposure Due to External Sources of Radiation*. No.RS-G-1.3

IAEA Technical Report Series. *Calibration of Radiation Protection Monitoring Instruments*. No. 16

IAEA Technical Report Series. *Compendium of Neutron Spectra and Detector Responses for Radiation Protection*. No. 318