Interregional Training Course on Safety and Regulatory Aspects of Small Modular Reactors (SMRs) and Other Advanced Reactor Technologies

Hosted by

The International Atomic Energy Agency (IAEA)

Vienna, Austria

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Information Sheet

Purpose

The purpose of the event is to train the capacity of Member States in ensuring the safe deployment of small modular reactors (SMRs) and other innovative reactor technologies.

Working Language

The training course will be conducted in **English.**

Deadline for Nominations

Nominations received after **22 February 2026** will not be considered.

Project Background

Small modular reactors (SMRs) are advanced nuclear reactors typically designed to generate electric power up to 300 MWe, the structures, systems and components of which can be fabricated in factories and transported to the installation site, shortening construction duration and reducing cost. Clean energy strategy advocates for the deployment of advanced nuclear reactors as a safe, reliable, flexible and competitive power source. SMRs based on different technologies, along with their various applications, are a promising option for near term and future deployment in Member States. The purpose of the project is to provide broad support to build Member States' capacities for development and deployment of SMRs in the context of a clean energy strategy, as a contribution of nuclear power to the global effort for climate change mitigation. The project will provide a wide range of forums to enable effective capacity building through training and technology transfer on all aspects of SMR development, including siting, design, and technology; engineering, manufacturing, construction, industrial supply chain, commissioning, operation, maintenance, and human resource management; fuel cycle; waste management; decommissioning; economics; financing; energy sustainability, nuclear safety, security and safeguards; emergency preparedness and response arrangements; and legal framework. The INT2025 project aims to improve knowledge and develop skills in recipient countries with regard to the fundamental aspects of SMR deployment, safety review capability, clean energy approach and their electric and non-electric applications, mitigating climate changes and integrating the basic principles of circular economy.

Scope and Nature

The training course is organized into three consecutive modules, each designed to build knowledge and practical skills progressively.

During the first week, the selected participants will receive lectures from the IAEA and international experts, as well as participate in discussions and in-class group sessions. The first day will provide an introduction of the IAEA's programme on advanced reactor technologies, including SMRs, and will be followed by five reactor technology specific modules during the rest of the week. The five modules will focus on Water-Cooled SMRs (WC-SMRs), High Temperature Gas Reactors (HTGRs), Lead Fast Reactors (LFRs), Sodium Fast Reactors (SFRs), and Molten Salt Reactors (MSRs) and will be delivered by international experts in each technology. To facilitate meaningful discussions on the key safety aspects of each technology, each technology specific module will be structured as follows:

- An introduction to the reactor technology, such as general plant description, operating history, nuclear core and fuel design, main plant systems and main applications.
- A description of the safety aspects of the reactor technology, such as design characteristics important to safety, implementation of defence-in-depth, how the fundamental safety functions (reactivity control, heat removal, confinement) are achieved, typical potential accidents and how they are dealt with in the design. For some of the technologies, a discussion about waste and spent fuel management and decommissioning will be included.

In-class group sessions will be organized throughout the week to help participants to have a better understanding of the matters discussed and assimilate the contents of the technology specific modules. Conclusions from the work will be discussed on the last day.

During the second week, participants will engage in hands-on assessments of selected advanced reactor types, applying the theoretical knowledge gained during the first week to practical case studies and using IAEA safety standards as a reference. Through this exercise, participants will strengthen their understanding of safety-related issues across different reactor technologies and increase their knowledge of how IAEA safety standards are applied in practice. Presentations will also be provided on cross-cutting safety topics, such as defence in depth, passive systems, design basis accidents and design extension conditions, including common positions developed by the SMR Regulators' Forum (SMR RF).

The programme will also include a dedicated session on Case Studies on SMR Regulatory Reviews, focusing on practical regulatory experience from Member States.

- Lectures and Case Studies: Experts will present examples of how national regulatory frameworks have been adapted for SMRs and share lessons learned from SMR regulatory reviews.
- Key Topics: Regulatory expectations and assessments related to design safety, safety analysis, and considerations for waste management and decommissioning of SMRs.

Interactive group sessions will be organized throughout the week to facilitate discussion and ensure participants can apply the concepts effectively.

In the third week, participants will received lectures on advanced licensing challenges. The final module addresses complex licensing issues for SMRs, drawing on the work and common positions developed by the SMR Regulators' Forum (SMR RF).

The content of this week will include:

- Licensing challenges and approaches related to SMRs, including regulatory cooperation, manufacturing, commissioning, and operation.
- Hands-on exercises to help participants evaluate how these challenges and approaches may impact their national regulatory frameworks.

The objective of this module is to equip participants with practical knowledge to navigate emerging regulatory challenges and support safe, efficient SMR deployment.

This three-week structure combines technical depth, safety considerations, regulatory insight, and practical application, ensuring participants gain comprehensive expertise on SMR technologies and their safe regulation.

Expected Outputs

The expected outputs of four-week training course are:

- Enhance participants' understanding of safety-related issues associated with advanced reactor technologies, including SMRs.

- Strengthen participants' knowledge of IAEA activities on the safety of these technologies and enhance their awareness of IAEA safety standards and how they apply to real cases.

- Develop and improve participants' skills in conducting safety reviews of reactor designs.

-Develop participants' understanding on the implementation of Licensing process to SMRs and the consideration of manufacturing commissioning and operation issues.

- Increase participants' awareness of approaches for adapting national regulatory frameworks to accommodate SMRs, including lessons learned from Member States' experiences.

Participation

The event is open to 25 participants from the following Member States which participate in the INT/2025 project:

Argentina, Armenia, Brazil, Bulgaria, Czech Republic, Egypt, Estonia, Ghana, Hungary, Indonesia, Jordan, Kazakhstan, Kenya, Lithuania, Mexico, Morocco, Nigeria, Pakistan, Philippines, Poland, Romania, Rwanda, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, Türkiye, Uganda, Uzbekistan, Zambia

At no cost to the IAEA, participants from following countries can also be considered: Belgium, Canada, China, Denmark, Finland, France, Italy, Japan, Republic of Korea, Russian Federation, Spain, United Kingdom, United States of America.

Participants' Qualification and Experience

The nominees should be representatives from invited Member States' governments, regulatory bodies, technical scientific support organizations, or prospective owner/operator organizations and SMR developers, particularly those needing to understand key issues and challenges associated with safety consideration of advanced reactor technologies, including SMRs. Nominees are requested to provide a summary of how this event will provide direct benefit to their current or future job position and/or organization. The event will be conducted in English, and it is expected that candidates possess a sufficient level of English proficiency to actively engage in the event without encountering any language-related difficulties. Note that accepted nominees will be encouraged to read a list of references to get the most out of the event. The list of references will be provided in due course.

Please be advised that self-funded participants will be given priority in the selection process. Allocation of self-funded places will be determined in accordance with meeting room capacity and other logistical constrains.

Application Procedure

Candidates wishing to apply for this event should follow the steps below:

1. Access the InTouch+ home page (https://intouchplus.iaea.org) using the candidate's existing Nucleus username and password. If the candidate is not a registered Nucleus user, she/he must create a Nucleus account (https://websso.iaea.org/IM/UserRegistrationPage.aspx) before proceeding with the event application process below.
2. On the InTouch + platform, the candidate must:
    a. Finalize or update her/his personal details, provide sufficient information to establish the required qualifications regarding education, language skills and work experience ('Profile' tab) and upload relevant supporting documents;
    b. Search for the relevant technical cooperation event (**EVT2506054**) under the 'My Eligible Events' tab, answer the mandatory questions and lastly submit the application to the required authority.

NOTE: Completed applications need to be approved by the relevant national authority, i.e. the National Liaison Office, and submitted to the IAEA through the established official channels by the provided designation deadline. **All nominations must include a scan of the candidate's first page of passport with photo.**

For additional support on how to apply for an event, please refer to the InTouch+ Help page. Any issues or queries related to InTouch+ can be addressed to InTouchPlus.Contact-Point@iaea.org.

Should online application submission not be possible, candidates may download the nomination form for the training course from the IAEA website.

NOTE: A medical certificate signed by a registered medical practitioner dated not more than four months prior to starting date of the event must be submitted by candidates when applying for a) events with a duration exceeding one month, and/or b) all candidates over the age of 65 regardless of the event duration.

Training on Basic Security in the Field (BSITF)

In order to comply with UN system-wide security measures, it is required that all training course participants complete the online security awareness training BSAFE (which replaces BSITF and ASITF), prior to traveling to locations where UN security phases are in effect. The aim of these course is to educate participants on how best to avoid or minimize potential dangers and threats, and to demonstrate what individuals can do if they find themselves in insecure situations. The course is available online (https://training.dss.un.org/course/category/6).

Once an individual has completed the training, he/she must go back to the main training page to receive the certificate. If the button to get the certificate is not immediately visible, please refresh the page. BSAFE is maintained by UNDSS; in case of problems with the system, please contact UNDSS through the "Contact Us" page on the training website (https://dss.un.org/dssweb/contactus.aspx).

This certificate is compulsory for any IAEA-supported activity and should be submitted, along with the Nomination Form, through the competent authority in your country (NLO). Copies of the certificate should be kept by the candidate for his/her records as the BSAFE certificate does not expire.

Administrative and Financial Arrangements

Nominating authorities will be informed in due course of the names of the candidates who have been selected and will at that time be informed of the procedure to be followed with regard to administrative and financial matters.

Selected participants will receive an allowance from the IAEA sufficient to cover their costs of lodging, daily subsistence and miscellaneous expenses. They will also receive either a round-trip air ticket based on the most direct and economical route between the airport nearest their residence and the airport nearest the duty station through the IAEA's travel agency American Express, or a travel grant, or they will be reimbursed travel by car/bus/train in accordance with IAEA rules for non-staff travel.

Disclaimer of Liability

The organizers of the event 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 course, and it is clearly understood that each Government, in approving his/her participation, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

Note for female participants

Any woman engaged by the IAEA for work or training should notify the IAEA on becoming aware that she is pregnant.

The Board of Governors of the IAEA approved new International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources. The Standards deal specifically with the occupational exposure conditions of female workers by requiring, inter alia, that a female worker should, on becoming aware that she is pregnant, notify her employer in order that her working conditions may be modified, if necessary. This notification shall not be considered a reason to exclude her from work; however, her working conditions, with respect to occupational exposure shall be adapted with a view to ensuring that her embryo or foetus be afforded the same broad level of protection as required for members of the public.

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