



Interregional Training Course on Basic Safety in Nuclear Power Plants for Regulatory Authorities

Hosted by

The Government of the People's Republic of China

through

Nuclear Industry College

Beijing, China

June 24 to July 19, 2024

Ref. No.: TN-INT2024- 2400741

Information Sheet

Purpose

The purpose of the event is to train participants on the basic concepts and subjects of nuclear safety in nuclear power plants including basic principles of radiation protection and the role of regulatory authorities.

Working Language

The training course will be conducted in English

Deadline for Nominations

Nominations received after 31 March 2024 will not be considered.

Project Background

The use of nuclear power as a source of energy is increasing globally, with many countries introducing or expanding their nuclear power programmes. Such programmes require a long term commitment and a national nuclear infrastructure that provides governmental, legal, regulatory, institutional, managerial, technological, human resource, industrial and stakeholder support throughout its life cycle. The adherence to international legal instruments, and the adoption of internationally accepted nuclear safety standards, nuclear security guidance and safeguards requirements are essential in establishing a responsible nuclear power programme. It is each country's sovereign decision whether to include nuclear power in its national energy mix. However, when countries proceed with this option, the IAEA is ready to support them through a variety of activities and services to do so safely, securely and sustainably.

Currently, the IAEA provides nuclear infrastructure development training to its Member States through a number of mechanisms. Through the Technical Cooperation programme, Member States benefit from training at the national, regional and interregional level. The majority of the training provided on the introduction of nuclear power is general in nature and cuts across the 19 infrastructure issues. In this respect, the interregional projects are an important mechanism, delivering support across national and regional boundaries and addressing the common needs of different regions. The interregional approach through INT2024 – NPID is then necessary to streamline the IAEA support in this area.

Developing a nuclear power programme is a major undertaking requiring careful planning and preparation. When developing and implementing the appropriate infrastructure to support the successful introduction of nuclear power, a wide range of issues and challenges need to be considered, two of which is the identification of a suitable site for nuclear power plants.

The survey and selection of appropriate site(s) is a project that needs to begin early. A well-managed process, including appropriate stakeholder involvement, often facilitates acceptance of a project. Most Member States of the IAEA that are considering nuclear power have no or little experience of siting and site evaluation activities specific to nuclear power plant.

A well planned and managed site survey and selection process, considering safety, environmental, technical, economic, and social factors, will ensure the proper choice of site and help the nuclear power programme and associated site related projects to be completed in a timely manner. If not properly planned and executed, it may result in major delays to the programme. It is therefore important to (i) share experiences and good practices related to this subject; (ii) highlight the importance of establishing a comprehensive management system with methodologies for planning and implementing the siting activities; (iii) further emphasize the importance of safety in siting; (iv) provide introduction on the site evaluation activities that follows the selection of appropriate site(s) and (v) ensure that the required quality of the activities is achieved.

The IAEA's Milestones Approach identifies 19 infrastructure issues that should be addressed in each of three phases of the development of nuclear infrastructure for a nuclear power programme. Siting and supporting facilities is one of these 19 infrastructure issues. Any country considering or implementing a new nuclear power programme should plan to develop or strengthen its national legal and regulatory framework so that it can fulfil in a timely manner the increasing obligations in this area associated with the introduction of nuclear power.

The Basic Professional Training Course on Nuclear Safety was offered for the first time at the end of 1999. After that the BPTC has been organized many times upon request of IAEA Member States.

Scope and Nature

The event is planned for four weeks and will include a combination of classroom lectures, exams and technical tours. The event will be conducted as a series of presentations by IAEA staff and international experts.

The Basic Professional Training Course on Nuclear Safety (BPTC) is intended to provide a broad overview of all the safety concepts and their application to nuclear reactors design, construction, commissioning and operation.

References:

- [IAEA Nuclear Energy Series No. NG-G-3.1, Rev. 1 “Milestones in the Development of a National Infrastructure for Nuclear Power”](#)
- [Fundamental Safety Principles, IAEA Safety Standards Series No. SF-1, IAEA, Vienna \(2006\)](#)
- [Governmental, Legal and Regulatory Framework for Safety IAEA safety standards series No. GSR Part 1 \(Rev. 1\), Vienna \(2016\)](#)
- [Establishing the Safety Infrastructure for a Nuclear Power Program IAEA safety standards series No. SSG-16, IAEA, Vienna \(2011\)](#)
- [Organization, Management and Staffing of the Regulatory Body for Safety, IAEA Safety Standards Series No. GSG-12, IAEA, Vienna \(2018\).](#)
- [Functions and Processes of the Regulatory Body for Safety, IAEA Safety Standards Series No. GSG-13, IAEA, Vienna \(2018\).](#)
- [Licensing the First Nuclear Power Plant, INSAG-26, IAEA, Vienna \(2012\).](#)
- [Ensuring Robust National Nuclear Safety Systems – Institutional Strength in Depth, INSAG-27, Vienna \(2017\).](#)
- [Construction for Nuclear Installations, IAEA Safety Standards Series No. SSG-38, IAEA, Vienna \(2015\).](#)
- [Commissioning for Nuclear Power Plants, IAEA Safety Standards Series No. SSG-28, IAEA, Vienna \(2014\).](#)
- [IAEA Nuclear Safety and Security Glossary, 2022 \(Interim\) Edition, IAEA, Vienna \(2022\).](#)
- [Safety of Nuclear Power Plants: Design, IAEA Safety Standards Series No. SSR-2/1 \(Rev. 1\), IAEA, Vienna \(2016\).](#)
- [Safety of Nuclear Power Plants: Commissioning and Operation, IAEA Safety Standards Series No. SSR-2/2 \(Rev. 1\), IAEA, Vienna \(2016\).](#)
- [Safety Assessment for Facilities and Activities, IAEA Safety Standards Series No. GSR Part 4 \(Rev. 1\), IAEA, Vienna \(2016\).](#)

Expected outputs

The expected outputs of the training course are improved knowledge and understanding in the following areas:

- The IAEA Safety Guide SSG-16 on establishment of a nuclear safety infrastructure for nuclear power programme in the three Phases of the Milestones Approach;
- IAEA services in support of the development or enhancement of nuclear safety infrastructure;
- The basic knowledge about nuclear reactor physics and safety-related characteristics of nuclear reactors;
- The defence-in-depth concept and safety principles applied in nuclear reactor design and operation;
- The roles and responsibilities of the operating organization and regulatory body;
- The main regulatory functions;
- Establishment of an integrated management system in the regulatory body;
- The principles of management of safety including safety culture for both the operating organisation and the regulatory body;
- The licensing process for nuclear reactors;
- Safety assessment, deterministic and probabilistic safety analysis and engineering factors for safety;
- Operating limits and conditions of the nuclear reactor;
- The regulatory aspects of emergency preparedness;
- Important safety-related tasks in the operation of a nuclear reactor, with special emphasis on planning and management of surveillance, testing and maintenance activities;
- The preparation and execution of a plan for radiological emergency;
- The rationale of the various management process activities at the plant;
- etc.

The event will also provide participants the opportunity to share and discuss common challenges and lessons learned, fostering enhanced networking between Member States embarking on new nuclear power programmes or expanding their existing NPP programme. Participants will also have the opportunity to visit China's nuclear facilities, including large NPPs and SMRs, as well as regulatory agencies.

Participation

The event is open up to 50 participants from the following Member States participating in the INT/2/024 project and RER9158 which need assistance to enhance the number and knowledge of staff involved in launching or expanding nuclear power programmes, namely:

Algeria; Argentina; Armenia, Republic of ; Azerbaijan; Bangladesh; Benin; Bolivia; Brazil ; Bulgaria; Cambodia; Chile; Colombia; Croatia; Cuba; Czech Republic; Democratic Republic of the Congo; Ecuador; Egypt; El Salvador; Estonia; Ethiopia; Ghana; Hungary; Indonesia; Iran, (Islamic Republic of); Jamaica; Jordan; Kazakhstan; Kenya; Kuwait; Kyrgyzstan; Lao People's Democratic Republic; Lithuania; Malaysia; Mexico; Mongolia; Morocco; Myanmar; Namibia; Niger; Nigeria; North Macedonia; Pakistan; Panama; Paraguay; Peru; Philippines; Poland; Portugal; Romania; Russian Federation; Rwanda; Saudi Arabia; Senegal; Serbia; Singapore; Slovakia; South Africa; Sri Lanka; Sudan; Thailand; Tunisia; Türkiye; Uganda; Ukraine; United Republic of Tanzania; Uzbekistan; Venezuela, Bolivarian Republic of; Viet Nam; Zambia; Zimbabwe.

Participants' Qualification and Experience

This training course is open to young professionals recently employed or to be employed by nuclear regulatory bodies that are currently regulating or getting prepared to regulate nuclear power reactors in a near future. The participants will be expected to fit the following criteria:

- * Have at least a first university degree in engineering (**except nuclear engineering**) or science related to nuclear technology; and
- * Possess the interpersonal skills and language skills necessary to participate effectively in the BPTC.

Candidates are requested to include a summary of how this training will provide direct benefit to their current or future job position in their application.

Individuals who participated in this course or a similar course in the past three years should not apply.

Participants are encouraged to complete the following IAEA e-learning modules before joining the course:

- **E-Learning Course on IAEA Safety Standards**
<https://www.iaea.org/newscenter/news/now-available-e-learning-course-on-iaea-safety-standards-in-six-languages>
- **E-learning for Nuclear Newcomers**
<https://www.iaea.org/topics/infrastructure-development/e-learning-for-nuclear-newcomers>
- **Implementing a Nuclear Power Programme**
https://nucleus.iaea.org/sites/connect-members/cbh/publicpages/E_Learning_Modules/01/Default.htm
- **Safety Infrastructure**
https://nucleus.iaea.org/sites/connect-members/cbh/publicpages/E_Learning_Modules/09/Default.htm

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. Download and complete the Designation of Beneficiary and Emergency Contact Form, and upload to InTouch+ ('Profile' tab under the personal section) specifying the document name. If already provided, kindly discard this step;
 - c. Search for the relevant technical cooperation event (**EVT2400741**) 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.

Programme Management Officer

Mr Jing Zhang
Division for Europe
Department of Technical Cooperation
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA
Tel.: +43 1 2600 26540
Fax: +43 1 26007
Email: J.Zhang@iaea.org

Administrative Contact

Mr Mingye Niu
Division for Europe
Department of Technical Cooperation
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA
Tel.: +43 1 2600 24561
Fax: +43 1 26007
Email: M.Niu@iaea.org