



# **Regional Training Course on Modelling Severe Accidents in Probabilistic Safety Assessment (PSA)**

**Hosted by**

The Government of Croatia

**through the**

Croatian Nuclear Society (HND - HRVATSKO NUKLEARNO DRUSTVO)

Dubrovnik, Croatia

**23 – 27 October 2023**

**Ref. No.: TN-RER9160-EVT2301457**

## **Information Sheet**

### **Purpose**

The purpose of the event is to train the participants on approaches to the modelling of severe accidents for safety analyses purposes, with specific focus on Probabilistic Safety Assessment (PSA).

### **Working Language**

The working language of the event will be English.

### **Deadline for Nominations**

Nominations received after **2 September 2023** will not be considered.

## **Project Background**

The project is designed to assist Member States (MSs) in the Europe and Central Asia region in building capacities in utilization of risk informed insights in severe accident management, which is critical in terms of protecting people and environment against the harmful effects of ionizing radiation.

The project is directly related to nuclear technology and is devoted to the topic of severe accidents at nuclear installations and potential releases. The project will foster the implementation of the recommendations stated in relevant IAEA Safety Standards (e.g., Specific Safety Guides SSG-2 (Rev. 1), SSG-4 and SSG-54) on the use of risk informed insights for the purposes of severe accident management.

## **Scope and Nature**

The scope of the regional training course covers the technical aspects related to severe accident modelling for the safety analysis purposes. Specific emphasise is to be made on modelling of severe accidents for PSA models, i.e., Level 2 PSA. In this context the training will address the entire spectrum of the elements related to the modelling of severe accident progression in PSA, such as accident dynamics, phenomenological factors, human interactions. During the event, state-of-the-art approaches in this area, available practices, and main challenges will be presented using illustrative examples, as well as interactive discussions will be held with the trainees.

By the end of the regional training course, the participants are expected to get knowledge on the following aspects of severe accidents modelling within PSA:

- Severe accident progression analysis (focusing on phenomenological factors)
- Modelling of human interactions during severe accidents (e.g. SAMG modelling)
- Containment integrity analysis
- Reflecting severe accident analysis results in the PSA elements (e.g. containment event trees)
- Source term analysis
- Evaluation and management of the uncertainties
- Risk-informed decision-making using PSA outcomes

Severe accident analysis related discussions are expected to address both reactor core and the spent fuel pool related accidents. In addition, the multiunit considerations in severe accident analysis will be also briefly covered.

During the event, the selected participants will receive lectures from international experts and participate in interactive discussions on topics of the event.

## **Expected outputs**

The expected outputs of the regional training course is to strengthen the capabilities of participants in following area:

- The role of severe accident modelling in safety analysis;
- Methods and approaches of modelling of severe accident in PSA;
- Decision making using the results of severe accident analysis in PSA.

The regional training course will also provide opportunities for participants to network, to share their experiences in topical areas of the event, to their challenges and obtain insights from international experts on the recommended path forward.

## **Participation**

The regional training course is open to up to 30 participants from TCEU Member States and a maximum of 10 local participants participating in the regional TC project RER/9/160.

## **Participants' Qualifications and Experience**

The nominees for the regional training course should be representatives of regulatory bodies, operating organizations, design organizations, technical support organizations, research or governmental institutes and industry, actively involved in the subject of the event. The participants should be young professionals working in the area of probabilistic safety assessment, severe accident analysis or accident management programmes development and implementation and having experience in severe accident modelling.

# 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 (EVT2301457) 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.

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](mailto:InTouchPlus.Contact-Point@iaea.org).

Should online application submission not be possible, candidates may download the nomination form for the meeting 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.

## **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.

# IAEA Contacts

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