

Nuclear Criticality Safety

Session: Consult on-line training schedule

Registration deadline: 3 months prior to course

Duration: 5 days
Certificate of attendance will be issued to participants who attend the full course.

Price: Contact us
The maximum number of students is limited to twelve participants.

Code: CO1045

[REGISTER NOW](#)

Contact

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Online catalogue

www.enstti.eu/training-catalogue

Examination:

Knowledge testing (multiple choice exam) will be performed on the full course content and successful candidates will be issued with a Knowledge Certificate.

Teaching methods:

Lectures, discussions and practical sessions are included.
Working group exercises are supervised by experienced TSO experts.

A USB stick containing the course material will be provided.



OBJECTIVES

When operations are performed on fissile materials outside nuclear reactor cores (storage facilities, laboratories, factories and transport), these operations present a particular risk: the risk of criticality. The nuclear criticality safety is the prevention of nuclear criticality accidents and the limitation of the consequences of such accidents they should occur.
This training provides basic knowledge on nuclear criticality safety.

TARGET AUDIENCE

Person responsible for design, fabrication or maintenance of nuclear criticality safety for a process or facility. These persons would be nuclear criticality safety specialists with the responsibilities of assessment, calculation or peer review of nuclear criticality safety documentation. Also, Individuals or bodies with responsibilities of oversight and regulation of facilities and processes.

Concerned area:

- fissile material transportation.
- fuel cycle plants (fuel manufacturing, recycling, etc).
- laboratories and fissile materials storage.
- reactor core in loading and unloading.
- plants permanently shut down or being dismantled.

PREREQUISITES

Have knowledge of neutron physics and nuclear safety.

PROGRAM

Basic concept

Physical properties of nuclear criticality, phenomenon and consequences of a criticality accident.

Reference fissile medium and methods of control / control modes

Notions used in the French regulation (main principles of methods of control: mass, geometry, moderation, concentration, poisoning).

Criticality accident

Feedback of past criticality accidents (exercises in small groups).

Calculation codes

Presentation of French codes used for nuclear criticality safety assessment.

Case study

Based on a fictive industrial equipment.

LEARNING OUTCOMES

- To understand the issues related to nuclear criticality safety.
- To learn the main principles retained to the prevention of criticality.
- To acquire basic knowledge related to criticality characterization and prevention (physical properties).
- To introduce the phenomenon of a criticality accident and to explain the French regulation on nuclear criticality safety (methods of control and reference fissile medium).