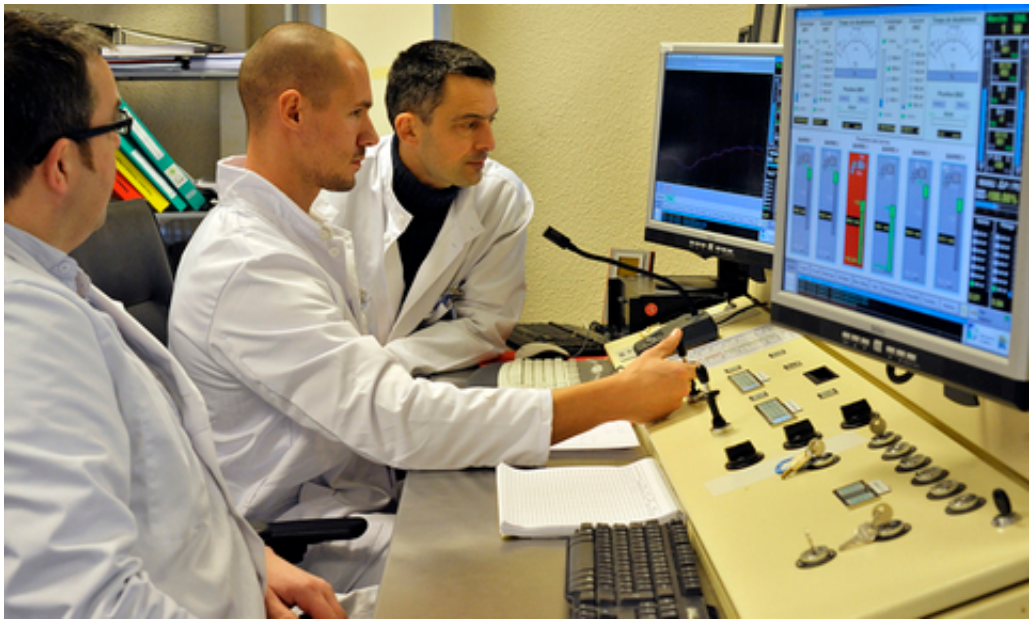
Basic operation of nuclear reactors

Code référence : 16A



OBJECTIFS

The objective of the course is to acquire basic knowledge on the principles and operation of nuclear reactors, focusing on the practical and safety aspects of reactor operation.

PUBLIC

Professionals, researchers and students with interest in the global understanding of reactor theory and operation.

PRÉ-REQUIS

Basic knowledge in nuclear physics

CONTENU

In order to enhance the effectiveness of the course, theoretical courses are coupled with practical courses, including 2,5 day courses carried out on the ISIS research reactor (700 kW open pool type reactor) located at CEA Saclay.

Theoretical courses:

- Reactor principles.

- Reactor systems.
- Neutron kinetics.
- Thermal-hydraulics of reactors.
- Basic safety.

Practical courses:
On the reactor: Visit and presentation of OSIRIS and ISIS reactors. Fuel loading survey, Approach to criticality, Reactor start up and dynamics, Rodworth, Reactivity effect of experimental devices, Temperature effects, Reactor operation by the trainees.
On simulators: Study of core poisoning by Samarium and Xenon, Demonstration of Pressurized Water Reactor operation.

MÉTHODE

Lectures and lab sessions on the training reactor ISIS and on PWR simulators.
Trainees have the opportunity to have a practical experience in reactor operation under the supervision of the instructors.
Maximum number of trainees: 10.
This course includes lab sessions using ionizing radiations and visits of facilities with regulated zones. Please comply with the conditions stated in the terms of sale.