Sodium technology and sodium loop operation practical (including practical work on SIRENa simulator)

Reference : 35B

Duration :

91hours(14d)

Place : INSTN École du sodium

Educational methods and tools :

ON-SITE VISIT | PRACTICAL WORK | TESTIMONIALS & FEEDBACK

IN SHORT

To enable participants to operate a sodium loop or facility, using the rules and guidelines for sodium facilities interventions.

WHO IS THIS TRAINING FOR ?

Beginner English speaking engineer who is lead to work on the operation of sodium loops or installations.

TARGETED SKILLS

- State the characteristics of sodium
- Describe and use specific sodium instrumentation
- Describe the steps of a sodium purification campaign
- Describe the specific features of the different components of a sodium circuit and outline the main phases of commissioning and operating a sodium circuit
- Outline the procedures when performing work on sodium or a sodium circuit
- Ensure self-protection in the event of a sodium fire
- Describe the operation of a sodium-cooled fast neutron reactor
- State the control variables of a reactor
- Describe the steps of normal and analyse transients
- Understand the incidental and accidental operation of a sodium-cooled fast reactor
- Understand the risk of crrosion and contamination in sodium-cooled fast reactors

PREREQUISITES

No prerequisites required.

ADVANTAGES

Collaboration with the french sodium school

Pratcial exercices on : start-up operations, filling operations, facilities operations, facilities interventions, sodium fire

Visits of sodium facilities and the reactor Phenix

CONTENT

• Sodium physical and chemical properties; sodium hazards • Sodium facilities: functional analysis approach; design rules for main loop and utilities • Sodium facilities operation: start-up procedure, transients, shut-down • Sodium Instrumentation: measuring sensors & calibration • Sodium facilities: technology • Rules and guidelines for sodium facilities interventions • In sodium corrosion and corrosion products transfer • Sodium pollution sources and potential consequences • Sodium quality control including purification • Heat transfer correlations and thermal-hydraulics modelling • Phenix & Superphenix reactors operation feedback • Sodium cleaning • Practical exercises on: start-up operations, filling operations, facilities operations, facilities interventions, sodium fire • Visits of sodium cleaning facilities, sodium test loops and Phénix reactor when the facilities are available • Operation and safety of SFR, safety during mal-function and accidents • Basic knowledge on neutron physics and reactivity feedback • Basic knowledge on thermal-hydraulics • Normal operation, operation constraints, thermal-mechanics, control, reactor's protection (thermal-hydraulics transients) • Decay heat removal systems • Sodium-Water Reaction issues • Detection and protection systems • In service inspection • Reactor's start-up

NEXT SESSIONS

Sodium technology and sodium loop operation practical (including practical work on SIRENa simulator)

25/11/2025 - 12/12/2025

9090 € - École du sodium

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