

NEPTUNO Project

Within the 6th Euratom research and training programme on nuclear energy (2002-2006), the European Commission supports the project "Nuclear European Platform of Training and University Organisations", NEPTUNO.

NEPTUNO integrates European education and training in nuclear engineering, nuclear safety and other nuclear disciplines with the major objectives to secure qualified curricula in nuclear education at European universities according to the Bologna declaration and to harmonize professional training and accreditation schemes.

The **NEPTUNO project** builds on the achievements of the 5th European Framework Programme, which led to the establishment of the **European Nuclear Education Network – the ENEN Association**. The NEPTUNO project will enhance the harmonization of professional accreditation criteria and the associated training programmes across the European Union.

The expected result is an operational network of institutions for academic education at the Master, doctoral and post-doctoral level complemented with research organizations, regulatory bodies and industrial partners supporting research and development, bench-training and continual learning schemes.

The project is carried out under the coordination of the French National Institute for Nuclear Sciences and Technology (INSTN) by a consortium of 35 partners, including 25 universities and 10 research institutes or private companies from 19 countries. Twenty-six partners are also members of ENEN.

In Slovakia, SNEN (Slovak Nuclear Education Network) was created in 2003. It brings together 8 university faculties, 3 governmental organizations, 10 industrial partners, 1 international organization located in Slovakia and 1 professional organization.

Place: Bratislava, Slovakia

Duration: 1 week (May 2 – 6, 2005)

Registration deadline: March 31, 2005

Registration fee: 700€

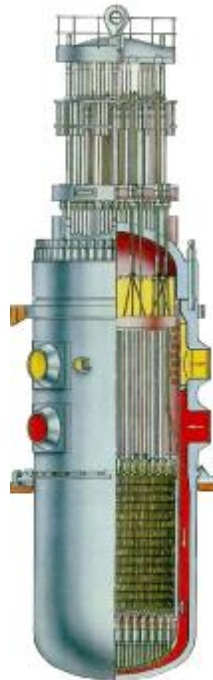
Registration & Information

Technical programme

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The ENEN Association is a non-profit organisation to preserve and develop higher nuclear education and expertise (www.enen-assoc.org).



**Course on
Nuclear Safety
for NPP subcontractors
Bratislava, Slovakia, May 2 – 6, 2005**

**Organised by the Slovak University of
Technology and CENS (Center for Nuclear Safety)
under the auspices of the ENEN Association**



Introduction

The safety culture is one of key topics of nuclear safety. It represents a set of characteristics and attitudes of organizations as well as individuals that ensures high priority and appropriate attention paid to solving the safety problems of nuclear power plants (NPP). The goal to accomplish the construction of Mochovce units 3 and 4 has put forward a demand for an improved professional performance of subcontractors in terms of nuclear safety.

This course is intended to provide overview of the concept of nuclear safety with special emphasis on WWER-type nuclear reactors. It is designed primarily for subcontractors and consultancy companies involved in the process of nuclear facilities constructions / operation in order to improve their competence in the specific field of nuclear knowledge and skills such as nuclear safety, emergency procedures, site access, radiation protection, etc.

"Nuclear Safety of WWER" is organized as a part of the Nuclear European Platform of Training and University Organizations (NEPTUNO) within the framework of the 6th Euratom research and training program on nuclear energy (<http://www.sckcen.be/neptuno>).

Scope of the Course

The main objectives of the course are:

- To understand basic terms of nuclear safety and to apply them in operation.
- To adopt principles of nuclear safety.
- To analyze causes of accidents and events and to acquire the lessons learned.
- To understand safety systems.
- Increase of safety culture of WWER.

Target group:

- Subcontractors and consultancy companies performing activities in NPPs.

Application deadline

The application deadline is March 31, 2005.

Venue

The course will take place at the premises of the Faculty of Electrical Engineering and Information Technology, Slovak University of Technology in Bratislava, Slovakia.

Programme

Nuclear Physics and Technology

Review of nuclear physics; radioactivity, interaction of ionizing radiation with matter.

Nuclear Reactors

Nuclear fission, Prompt and delayed neutrons, Moderation of neutrons, Equilibrium of neutrons in fission environment, Reactor kinetics, Reactor operation.

Nuclear Safety

Nuclear safety, INES, Deterministic and probabilistic approach to nuclear safety, Defence in depth, Application of defence in depth at WWER.

Safety Systems of NPP

Active and passive safety systems, Safety system of NPP, Emergency cooling, Control systems.

Materials of NPP

Physical metallurgy, Radiation damage, Nuclear fuel, Moderator, Coolant, Neutron absorption materials, Steels, Corrosion, Embrittlement, Fracture.

Safety Aspects of NPP Technology

Technology systems of NPP, The most frequent failures, Supporting systems of NPP and their impact on operation safety, Electrical systems.

Quality Assurance

Role of state and legislation in nuclear safety, International rules, Quality management.

Accidents and Events with Impact on the Safety of NPP Operation and WANO Feedback

Classification of accidents and events, System of monitoring, Methodology of assessment of causes, IRS, IAEA missions.

Reliability of NPP

Theory of reliability, Qualitative and quantitative assessment, Probability, Reliability of systems, Event tree, System analyzes, Design of reliable systems.

Safety Culture and Human Factor

Definitions, Communication, Human factor under stress conditions, Hazards, Responsibility and stress, Choice of operation staff, Testing, Operation safety feedback.

Dosimetry and Radiation Protection

Dosimetry units, Terminology, Influence of radiation on human organism, Nuclear reactor as a source of radiation, Dosimeters and detectors used in nuclear power plants.

RA Waste and NPP Decommission

Radioactive waste, Treatment of RA waste, Reprocessing of RA waste, Spent nuclear fuel, Transport containers, Decommission of NPP.

Course on Nuclear Safety for NPP subcontractors Bratislava, Slovakia, May 2 – 6, 2005

Application Form

Title:

First Name:

Last Name:

Institution:

Mailing address:

Phone number:

Fax number:

E-mail:

Please return this application form to:

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