Training Course on
Nuclear Fuel Cycle

Place
Munich, Germany

Date
September 16 - 18, 2009

Who should attend?
The course module is tailored to university graduates in engineering and science preparing for careers at nuclear utilities, vendors, suppliers, regulators, international organisations, expert organisations and consultants. The module is also well suited for young academic professionals in nuclear organisations and for nuclear reeducation of engineers and scientists working in other fields.

Lecturers
The lectures are given by internationally renowned experts and executives from industry, research institutes and universities.

Registration deadlines
Early registration: August 7th, 2009
Late registration: September 11th, 2009

Registration fees*
Early registration: 1,250 €
Late registration: 1,500 €

* Fees include VAT, cover lectures and course material.

ENEN members receive a 20% reduction.
Grants are available for a limited number of students.

Information / registration
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Further details and registration at www.isar.tum.de/courses

Venue and Accommodation
The lectures will be given on the premises of the Technical University of Munich.
Summary

This course module covers the technical, industrial, safety, environmental and economical aspects of the different stages of the nuclear fuel cycle ranging from the extraction of ore over fabrication of reactor fuel and fuel transport up to the reprocessing of fuel and disposal of nuclear waste. The relationship between reprocessing, reactor fuel design, refuelling strategies and waste disposal is discussed as well as the international economic dimension of the different stages of the fuel cycle.

The focus is on current LWR fuel technology. New developments and features of other reactor fuels and their relation to specific reactor types are summarized.

Objectives

Participants should achieve a good understanding of:
- all processes involved in the LWR fuel cycle for both direct disposal of used fuel and reprocessing
- economical aspects of different fuel cycle options
- the worldwide situation and the geopolitical perspectives of fuel resources and capacities
- advantages and disadvantages of fuel reprocessing
- safety and environmental aspects relevant for protection and regulation

Participants should acquire a basic orientation about:
- significant past events in fuel cycle facilities
- current technical and economical trends related to the nuclear fuel cycle
- main features of non-LWR fuel cycles and their relation to specific reactors

Syllabus

- Uranium chemistry
- Overview of the stages of the nuclear fuel cycle
- Overview of the fuel cycle industry
- Mining, milling, purification and conversion of uranium
- Uranium enrichment
- LWR fuel fabrication, effects of irradiation on fuel
- Transport and storage of irradiated fuel
- Basics of reprocessing of spent nuclear fuel
- Recycling of uranium and plutonium
- Classifications of radioactive waste
- Nuclear waste disposal technologies
- Selection criteria for repositories
- Properties of geological repositories
- Critical safety features in the different stages of the fuel cycle
- Overview of advanced fuel technologies and non-LWR fuel cycles

Sources: AREVA NP, Urenco, K. - J. Roehlig