

Location

The course will be held at the facilities of **Karlsruhe Institute of Technology (KIT)** and **Joint Research Centre (JRC)** located at the **KIT Campus North**, ~10 km north of Karlsruhe next to Eggenstein-Leopoldshafen

(<http://www.kit.edu/downloads/Campus-Nord.pdf>)



Before attending this course, participants are encouraged to follow the MOOC 'understanding nuclear energy'. Registration to the edX platform for this MOOC is free of charge.

(<https://www.edx.org/course/understanding-nuclear-energy-delftx-nuclear01x-0>)

If you are interested in participation, please provide following information to:

annette2018@ine.kit.edu

Please complete all sections

Name:

Institution:

Address:

.....

e-mail:

Phone:

undergraduate student

graduate / Ph.D. student

other

For information or questions, please contact:

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EURATOM Coordination and
Support Action
ANNETTE

Teaching Module

“Nuclear Fuel – from
Cradle to Grave”

Karlsruhe, Germany
October 8th – 12th, 2018



Introduction and Scope

A **five day teaching module** is organized within the framework of the EURATOM ANNETTE project <http://www.enen.eu/en/projects/annette.html>

The course will comprise:

- Lectures by experts
- Laboratory visits with practical training.

The course focuses on the topic **Nuclear Fuel Cycle**. It is open to all interested graduate students, Ph.D. students, post-docs, professionals and is limited to 15 participants. In case of vacancies during the course these can be filled with other interested persons. It will provide advanced level understanding of the complete fuel cycle by following nuclear fuel from its origin and fabrication, through its stay in the reactor with all alterations induced there, and ending with reprocessing options and waste management issues for the spent nuclear fuel. In other words: "Nuclear fuel – from cradle to grave". Moreover, it covers (basic) radiation protection issues throughout the nuclear fuel cycle.



Course contents

Front end of the fuel cycle

- uranium exploration and mining
- uranium enrichment
- fuel fabrication

Nuclear Fuel in Reactor

- fuel properties under normal reactor operation
- build-up of actinides
- activation and fission products
- radiation damage during irradiation
- fuel alteration during severe accidents

Back End of the Fuel Cycle

- reprocessing of spent nuclear fuel
- vitrification/HLW glass
- interim storage and conditioning of high level waste
- fuel cycle waste treatment
- options for long-term HLW management

Operational Radiation Protection

- Operational radiation protection
- Radiation protection in connection with handling of (spent) nuclear fuel in reactors
- Radiation protection in connection with handling of high-level radioactive waste in storage facilities

General information

The teaching module is co-organized by the *Karlsruhe Institute of Technology, KIT*, and the Karlsruhe site of the *Joint Research Centre, JRC*.

The teaching module is free of charge.

Following costs will be covered:

- Attendance to the course
- Coffee breaks
- Shuttle from Karlsruhe city to KIT Campus North

Other costs must be covered by the participant (e.g. travelling and accommodation costs).

NB.: Grants to cover travelling and accommodation costs can be requested by applying **not later than July 31st, 2018**, to the ENEN + Mobility scheme:

<https://plus.enen.eu/call-for-mobility-grants/>

The course is funded by the ANNETTE project, EURATOM Research and Training programme (grant agreement N° 661910).



Registration

The requested information of the registration form (see front page) must be provided and sent to the following E-mail address:

- annette2018@ine.kit.edu

Deadline for registration is September 15th, 2018