Monthly Bulletin

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NOVEMBER 1ST, 2018 ISSUE NO. 6

In this bulletin

In this issue, as in the one of the last month, we deleted a few courses already held and **we added some information** on others. There are still **plenty of places** in interesting courses, while **courses by NTEC and University of Manchester are saturated**. So, please diversify your choices.

We again suggest that, **if you apply for support by the ENEN+ project, you should prompt the Course Providers about this request, soon at the time of being contacted**. This may help in getting support.

We had up to now more than 100 applications most of them for multiple courses.

Thanks for your interest in our courses!

Link to the course application page

Link for asking support for mobility to the **ENEN+ project**

PLEASE LOOK ALSO AT THE COMPLETE OFFER
FOR LAST MINUTE SELECTION OF COURSES ALREADY ADVERTISED

COMING SOON COURSES

2-days Workshop on "Proliferation Resistance Methodologies for Nuclear Installations"

SCK•CEN (Brussels), Belgium
(November 22-23, 2018)

ESARDA
European SAfeguards Research and Development Association

UPPSALA UNIVERSITET · SCK•CEN · JÜLICH FORSCHUNGSZENTRUM · JRC EUROPEAN COMMISSION

WORKSHOP CONTENT
The goal of this workshop is to apply and compare different proliferation resistance methodologies in a case study of a nuclear installation.
The characteristics of the installation taken as case study is presented at the start of the workshop. Then, the principles of several proliferation resistance methodologies are introduced and realistic examples are shown. After the introduction of each methodology a table-top exercise is prepared to give the possibility to the participants to apply directly the methodology.
Large sections of the workshop are dedicated to the application of the different methodologies to the specific case study and discussion of the results among the participants. A comparison of the methodologies is foreseen at the closing of the workshop.

REQUESTED BACKGROUND
This workshop is intended for professionals that are involved in nuclear safeguards tasks in their organization. Knowledge of nuclear safeguards is required to attend the workshop. The principles needed to apply each proliferation resistance methodology are presented before the table-top exercise.

APPLY HERE
In order to apply for this course, please use the application form on the ENEN website here: **http://www.enen.eu/en/projects/annette/annette-project-courses1.html**
Please enter **Workshop on "Proliferation Resistance Methodologies for Nuclear Installations"** as the course name and **ESARDA** as the course provider.

COURSE FEE
The course is offered as part of the ANNETTE-project and there is no course fee for the participant. However, participants will need to pay for travel, accommodation and meals.

CONTACT
For questions and further information, please contact:
Riccardo Rossa
Scientific collaborator Nuclear Science and Technology Studies at SCK•CEN
Email: **riccardo.rossa@sckcen.be**

Regulation and its Application in Nuclear Projects

Framatome (Karlstein, close to Frankfurt), Germany
(December 17-18, 2018)

Course Outline
The course is directed towards engineers that are employed by the ITER Organization, Fusion for Energy, or their sub-contractors in the ITER project (down to the lowest level, i.e. in the supply chain), or in any other supply chain company active in fission new build projects. Preferably they should be active in ITER (or any other fission/fusion new build) related design, procurement, manufacturing, construction, assembly, and commissioning of ITER (or fission/fusion new build) equipment.

The course will impart specific knowledge on nuclear licensing and the impact of licensing requirements on the design as well as on subsequent down-stream activities. Furthermore, it will be complemented by additionally training the skills that are necessary in the nuclear environment of a fission or fusion project like ITER.

Course Content
The training contains the following:
1. Introduction to and overview of national / international nuclear law(s) and related regulation, involved national and international organizations (e.g. ASN, IAEA),
2. Main licensing activities / deliverables / responsibilities,
3. Overview of Codes and Standards (C&S) and introduction to relevant C&S, their impact on regulation or licensing,
4. Introduction to and overview of nuclear risks, safety objectives, and derived requirements,
5. Basic safety principles: management / technology / process oriented (e.g. defense in depth),
6. Introduction to (deterministic and probabilistic) safety analysis and related tools used by different technical disciplines for simulations in support of licensing,
7. How to integrate nuclear regulation requirements into fusion projects, and perform requirements management,
8. How to apply nuclear regulation requirements in design/manufacturing/construction/assembly/commissioning activities.

REQUESTED BACKGROUND
The targeted trainees should have undergone a suitable technical engineering education, preferably in a technical subject matter important for their actual job position. They shall be able to understand the basic design of a power plant and its systems and components, and the technical basics (physics/chemistry resp. design/operation) of a nuclear (fission or fusion) reactor.

APPLY HERE
In order to apply for this course, **please enroll at the ANNETTE application page and then contact:**
Goerge Baltin, Email: **goerge.baltin1@framatome.com**

COURSE FEE
The course is offered as part of the ANNETTE-project and there is no course fee for the participant. However, participants will need to pay for travel, accommodation and meals.

CONTACT
For questions and further information, please contact:
Goerge Baltin
Course Manager at Framatome Training Center Germany
Email: **goerge.baltin1@framatome.com**

THE FULL CALENDAR OF BNEN COURSES HAS BEEN PUBLISHED: SPEED UP TO RESERVE!

Belgian Nuclear higher Education Network

THE BELGIAN NUCLEAR EDUCATION NETWORK

BNEN Courses: the full available programme proposed for ANNETTE in a modular fashion (ACADEMIC CALENDAR)

Advanced radiation protection radiation ecology (3 ECTS) (19-23 November 2018)
Advanced courses of the nuclear fuel cycle (3 ECTS)Nuclear thermal hydraulics (5 ECTS) (3-14 December 2018)
Nuclear reactor theory (6 ECTS) (7-25 January 2019)
Safety of nuclear power plants (5 ECTS) (11-22 February 2019)
Advanced nuclear reactor physics and technology (3 ECTS) (11-15 March 2019)
Advanced nuclear materials (3 ECTS) (18-22 March 2019)
(25-29 March 2019)
Nuclear and radiological risk governance (3 ECTS) (1-5 April 2019)

STILL COLLECTING APPLICATIONS FOR FPS@KIT SCHOOL

Karlsruhe Institute of Technology

COURSES OFFERED BY THE FRAMATOME PROFESSIONAL SCHOOL (FPS) AT KIT FOR ANNETTE

- **Reactor Exercises** (spring 2019)
- **Design Basis Accidents for Light Water Reactors and Numerical Simulation Tools** (April 2019)
- **Computational fluid dynamics with OpenFoam** (November 2018)
- **Design of Pipelines against Earthquake Loads** (on demand)

AN EXTENDED OFFER BY FPS@KIT FOR ANNETTE (TENS OF PLACES)

- Monte Carlo criticality and shielding calculations (12.11. - 16.11.2018) (link);
- Reactor physics calculations with deterministic methods (link);
- Beyond-design accidents, core-melt accidents (link);
- Coupled Neutron Kinetics /Thermal Hydraulic Codes for Safety Assessment of Nuclear Power Plants (10.12. - 14.12.2018) (link);
- Thermohydraulic Stability Analysis (link);
- Technology and Management of the Decommissioning of Nuclear Facilities (10.09. - 14.09.2018) (link);
- Radiolytic Gas Management in Boiling Water Reactors (link);
- Stress Analysis (link);
- Light Water Reactor (LWR) core design and fuel management (link);
- Light Water Reactor (LWR) core feedback and transient response (link).

For a general description of course conditions, look at this link

CEA-INSTN COURSES WITH NEW DATES	**Courses by CEA INSTN (FREE of CHARGE FOR ANNETTE)** ▪ **PWR operation and safety** (3-7 December 2018) Click here for the Learning Outcomes ▪ **Thermal Hydraulics and safety** (14-18 January 2019) ▪ **Materials for Nuclear Reactors** (21-25 January 2019) ▪ **Reactor core physics: Deterministic and Monte Carlo methods** (21-25 January 2019) ▪ **Nuclear fuels for light water reactors and fast reactors** (28 January - 1 February 2019) ▪ **Neutronics for light water reactors** (11-15 March 2019 and 18-22 March 2019) Click here for the Learning Outcomes
INFORMATION ON RECENTLY ADVERTISED COURSES	**REMINDERS**
Principles of Radiation Protection. International Framework. Regulatory Control (e-learning)	**Lecturers:** Mrs. Gabriela Rosca-Fartat Mr. Gabriel Stanescu, PhD "Horia Hulubei" National Institute for Physics and Nuclear Engineering (IFIN – HH) Nuclear Training Centre 30 Reactorului, RO-077125, Bucharest-Magurele, Romania **Method of Delivery:** Asynchronous e-learning. Links to the course material will be provided at a later stage. **Final Examination:** multiple-choice test ***Date of availability of the course material: 15 September 2018***
COURSE BY UPPSALA UNIVERSITY	***Course on Human-Technology-Organisation/Human Factors for Nuclear Safety including Virtual Reality Resources as part of Safety Culture (6 ECTS)*** (November 5, 2018, to December 21st, 2018)
SINGLE AND TWO-PHASE THERMAL-HYDRAULICS - for nuclear applications **(e-learning)**	**SINGLE AND TWO-PHASE THERMAL-HYDRAULICS** The theoretical lectures and exercise material are already posted. **Videos for theoretical lectures and applications fully available. Contact:** walter.ambrosini@unipi.it

MASSIVE OPEN ONLINE COURSE ON NUCLEAR SAFETY CULTURE

By TECNATOM and UNED

MOOC (Massive Open Online Course):

Introducing safety culture and its application to the nuclear field
A completely online, free, international course. General information about the MOOC is available in the link above.
30 h of participant work – 1ECTS
Divided in 4 independent NOOCs (Nano Open Online Courses):

NOOC I. What is safety culture?
NOOC II. Understanding Nuclear Safety Culture
NOOC III. Developing leadership for safety
NOOC IV. Refreshing Nuclear Basics

Open now the free registration, by clicking on each NOOC above.
Provisional starting date: February 4th 2019, we are actually in the production process!
If you want to receive information about the MOOC/NOOCs, please fill the form **here**

We highly thank those advertising this initiative within the nuclear sector, but as well towards professionals from other industries (specially high-risk industries), as well as master students of nuclear and other technical studies, to gather a varied audience to enhance global networking and a collaborative learning experience. This course will allow a research study and its dissemination is crucial to achieve massive participation from the main target groups.

DISSEMINATION ACTIVITIES

Presenting the MOOC course for ANNETTE project in the international congress "Learning with MOOCS 2018" (LWMOOCS V)

UNED has presented the MOOC course for ANNETTE project "Introducing safety culture and its application to the nuclear field" in the international congress "**Learning with MOOCS 2018**" (LWMOOCS V), celebrated in Madrid 26th-28th September in UNED.

Innovative social approach in the nuclear sector: a MOOC in Nuclear Safety Culture within H2020 ANNETTE project

Mercedes Alonso-Ramos[1], Ángeles Sánchez-Elvira[1], Javier Sanz Gozalo[1], David Abarca Ahijado[2], Álvaro Pablo Muñoz Rodrigo[2], Fernando González González[2], Tiberio Feliz Murias[1], Manuel Alonso Castro Gil[1]

[1]UNED, Spain; [2]Tecnatom, Spain

The audience talked about the big expectation on what a MOOC of this type in the nuclear sector could attain regarding specially the collaborative learning environment and the interaction between very different target groups: the nuclear sector professionals as well as master students and professionals from other industries.

INOOC in EADTU OOFHEC 2018 in Aarhus presenting our MOOC within the Horizon 2020 ANNETTE project

UNED has participated in "**The Online, Open and Flexible Higher Education Conference" – OOFHEC2018. Blended and online Learning: Changing the Educational Landscape,** organized by the EADTU (European Association of Distance Teaching Universities). The conference was hosted by Aarhus University, Denmark.

In the Conference, our work in the field of nuclear E&T innovation was presented, and more specifically our current development of the MOOC on Nuclear Safety Culture within **ANNETTE project** in collaboration with **TECNATOM**.

Fostering innovation in the nuclear ET sector through e-learning and MOOCs within the Horizon 2020 ANNETTE project

Alonso Ramos, M., Sánchez-Elvira Paniagua, A., Sanz Gozalo, J., Abarca Ahijado, D., González González, F., Feliz Murias, T. & Castro Alonso, M.

UNED has played an important role in the introduction of eLearning to guide the innovation in the project. Our commitment to the project is centred in the MOOC "Introducing Nuclear Safety and its application to the nuclear field". Nuclear Safety Culture (NSC) is a multidisciplinary discipline, the first driver for all nuclear organizations, and a must when teaching on any subject in the nuclear field. The MOOC, built on the expertise in NSC of the engineering company Tecnatom, and guided by the know-how of UNED in open, online learning and MOOCs, is then part of an innovative offer for advanced education, contributing as well to a horizontal communication between stakeholders in the nuclear sector. Also, the possibility to be followed by anyone anywhere opens the scope of the participants to professionals from other industrial sectors, and to talented young students

	or professionals. Considering the number of people retiring and the difficulties to attract talent to the nuclear sector this networking activity becomes one of the strategic objectives of the MOOC.
European Nuclear Education Network Association Tel: +33 637 304 617 E-mail: secretariat@enen.eu	**GENERAL INFO:** Web page of ANNETTE Courses http://www.enen.eu/en/projects/annette/annette-project-courses1.html Web page for course application: http://www.enen.eu/en/projects/annette/eoi1.html **LINK TO COURSE LIST** **LINK TO THE APPLICATION FORM** Web page concerning the grants of the ENEN+ project https://plus.enen.eu/grants/