Experts from Lithuanian Energy Institute trained Algerian specialists in the field of Severe Accident Analysis

By request of the European Nuclear Safety Training and Tutoring Institute (ENSTTI), the Lithuanian Energy Institute (LEI) experts on 01–12 July 2018 provided training for the Algerian nuclear energy specialists. Participating in ENSTTI activities, up to now LEI hosted a few training courses (on reactor safety, reactor neutronic and decommissioning) and a number of tutoring programs for Belarusian, Algerian and Egyptian specialists (regarding modelling of processes in containments, severe accidents analysis and emergency preparedness, deterministic and probabilistic safety assessment and other topics). The advanced training courses on deterministic safety assessment specialized in severe accident analysis in nuclear power plants was the first one which was held in Algeria (Algerian Training Institute of Nuclear Energy) and only experts from LEI were invited as lecturers.

The training course "Deterministic Safety Assessment: Severe Accident Analysis" took place on 01–12 July 2018. These courses were organized by ENSTTI together with the International Atomic Energy Agency (IAEA) for the participants of Algeria Atomic Energy Commission (COMENA) and Draria Nuclear Research Centre CRND. These training courses were prepared by experts of LEI. The lectures and practical exercises in the training courses were provided by Algirdas Kaliatka and Tadas Kaliatka from the Laboratory of Nuclear Installation Safety, LEI.

These training courses were organized for the benefit of master degree or higher educational level professionals involved in nuclear safety

Group picture of course organisers, trainees and lecturers

activities employed in Nuclear Regulatory Authority (NRA) and Technical Support Organisation (TSO). It is aimed at maintaining and increasing technical competence and ensuring the sustainable development of nuclear technology. Basic knowledge in the field of thermal-hydraulic is pre-requisites for attending the course.

The objective of the training courses was to provide a transfer of knowledge in the field of reactor thermal-hydraulics. The course was focused on nuclear reactor safety, fundamental phenomena and computer codes for severe accident analysis in nuclear power plants.

The expected outcome is to improve the competences and the level of understanding of the participants in relation to the following topics:

- thermal-hydraulics of nuclear reactor systems;
- factors influencing the thermal performance of nuclear fuel elements;
- heat transfer mechanisms in reactor systems;
- single- and two-phase flow dynamics and heat transfer;
- limits on safe power removal from reactor cores;
- phenomena during severe accidents in reactors; and
- computational methods for design basis and beyond design basis accidents in reactors.

The training courses were organized in the form of interactive lectures and practical exercises. The interactive lectures took approximately 50% of the course time. The remaining half was covered by practical exercises. The participants obtained important up-to-date information for their activities in the fields of nuclear safety. The participants were familiarized with the state-of the-art system computer codes RELAP5 and RELAP/SCDAPSIM. They received skills regarding the model development and performance of the accident analysis.

The final test was comprised of two parts in order to assess the trainees how they learned theoretical and practical parts of the course. For the theoretical part the multiple-choice test and for the practical part the practical exercises using RELAP/SCDAPSIM code were provided by experts of LEI. The exam results were highly positive: 3 trainees received the evaluation "excellent", 14 – "very good" and 3 – "good".

At the end of the training course the general discussion on the results of the final test and students' feedback on the course (content, planning, organization …) was organised. Such feedback is very important for improvement of trainings in the future.

As it was mentioned before, it was the first ENSTTI organized training course where LEI experts provided lectures in the country of trainees; however, it is not the last. Next course related to Reactor Kinetics is planned in Algeria at the end of September 2018.

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