GRE@T-PIONEER

Course on

Nuclear data for energy and non-energy applications

The course on nuclear data focuses on the whole range of activities in the "Nuclear Data Life Cycle".

The course covers all steps starting from measurements to their validation and final use in nuclear reactor calculations, giving the students a full and comprehensive overview of: i) experiments and theory ii) compilation of information, iii) generation and evaluation of nuclear data libraries, iv) processing of nuclear data libraries for use in nuclear applications, v) assessment of nuclear data uncertainties, vi) importance of nuclear data adjustments, vii) and, finally, review of current activities, projects and international networks on nuclear data.

The **pedagogical format** of the course is based on a **hybrid flipped classroom**. In this format, you need to complete some **online self-paced preparatory work** (representing about 40 hours of work) before attending **interactive classes** organized during 5 consecutive days (representing about 40 hours of work). Those classes are given in a hybrid set-up, with participants following the classes either onsite or remotely on the web. Research in engineering education demonstrated that flipping leads to higher student engagement, better achievement of the learning outcomes and increases the interactions between the students and the teachers.

After successfully completing the course, you will be able to:

- Understand the "Nuclear Data Life Cycle".
- Use nuclear data bases (EXFOR, Evaluated Files, ICSBEP, …) and tools (NJOY for processing , JANIS for visualization , DICE&IDAT, NDAST for assessing the impact of nuclear data in criticality calculations, etc.).
- Know international activities and sources of information related to nuclear data.

The **target audience** for the course is:

- MSc students, PhD students and Post-Doc students having some background knowledge in nuclear engineering.
- Nuclear engineers.
- Reactor physicists.

- Nuclear safety analysts.
- Research scientists in the above fields.

In order to **pass the course** and be issued a **course completion certificate**, you need to obtain at least 50 points (out of 100 max. points). All activities (both during the preparatory work and the interactive classes) are graded. The certificate will briefly describe the course contents, the number of hours the different course elements represent and the number of equivalent ECTS credits (European Credit Transfer and Accumulation System). **The course is worth 3 ECTS**.

As a course participant, you get access to:

- An online **Learning Management System** with 24/7 access to all teaching resources for 4 months.
- During the **online self-paced preparatory phase**:
  - A set of **handbooks** written for the course.
  - **Video lectures** associated to the handbooks.
  - **Quizzes** to test your understanding.
- During the **interactive phase**:
  - **Engaging activities** aimed at applying the principles learned during the preparatory phase.
  - **Expert support** from the teachers.
  - Possibility to **network** with the other participants.

You can read some **testimonies** of our past attendees on our website at this **link**.

The course is given by:

- Prof. Oscar Cabellos, Universidad Politécnica de Madrid, Spain.
- Three Guest Lecturers who are experts of the nuclear data community.

The course is fee-based. Fees vary according to geographical location (developed or emerging country) and participant status (student or professional). Payment of the course will be requested after having applied and having received confirmation that you have been accepted for the course. People accepted for the course will then get a link to pay online. The course fees are as follows:

- Course fee for professionals – Developed countries: 1875 EUR (VAT included).
- Course fee for professionals – Emerging countries: 300 EUR (VAT included).
- Course fee students – Developed countries: 100 EUR (VAT included).
- Course fee students – Emerging countries: 50 EUR (VAT included).

You can find more information on fees and the list of developed and emerging countries on our website at this **link**.

The course platform opens on September 25th, 2026, for the online self-paced preparatory work, and the interactive sessions are organized between October 26th, and October 30th, 2026, at Chalmers University of Technology, Gothenburg, Sweden, and on the web.

Apply for the course between August 10th, 2026, and August 30th, 2026, at:

great-pioneer.eu/registration

Participants choosing the onsite version of the course must also cover their own expenses (travel, food, and accommodation). Possibilities, if any, to apply for financial support for onsite attendance are indicated in the application form above.

Questions can be sent to **contact@great-pioneer.eu**