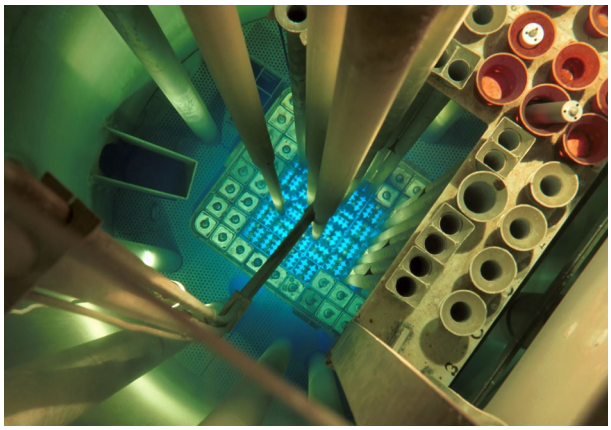
Hands-on exercises on the BME Training Reactor

The Budapest University of Technology and Economics (BME) Training Reactor is a 100 kW maximum power, pool type, light water moderated **research reactor** used regularly **for education and training**. A set of measurements is offered in the framework of the GRE@T-PIONEeR alliance to **complement** the topics of the six courses delivered by the alliance and allow the **application** of the acquired knowledge **in practice**. Besides **learning and experiencing** fundamental principles of reactor physics, the aim is to **compare measurements and simulations** and **demonstrate** the importance of modelling details and achievable accuracy.



BME Training Reactor

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 completed the course, you will be able to:

- **Understand** the principles of **experimental reactor physics**, nuclear measurements, and **radiation protection**.
- **Understand** the behaviour of **nuclear reactors** and their **operation**.
- **Evaluate** measurement data and **compare** with modelling results.

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 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 December 9th, 2026, for the online self-paced preparatory work, and the interactive sessions are organized as follows:

- The online participants are required to remotely join afternoon sessions between January 11th and 15th, 2027 (such sessions could also be attended by the onsite participants if they wish).
- The onsite participants are required to join onsite all-day sessions between January 18th and 22nd, 2027, at Budapest University of Technology and Economics, Budapest, Hungary, whereas the online participants are required to remotely join the afternoon sessions only.

Apply for the course between October 5th, 2026, and October 25th, 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**