Course offered for the PhD program
in Civil, Chemical and Environmental Engineering
a.y. 2024/2025 (XL cycle)
(course is open for participation of students from other PhD cycles or programs)

1. Title

Electrochemical energy: advanced materials and technologies.

2. Course Description

The course aims to provide to future PhDs notions and fundamentals on several emerging materials and electrochemical technologies for energy production and storage, along with a discussion about some of the key technical challenges: fuel cells, rechargeable batteries, electrochemical reactors for hydrogen production will be discussed.
The course will deal as well with the main electrochemical techniques in continuous (cyclic voltammetry) and alternating current (impedance spectroscopy), in relation to different technologies characterisation.

3. Course Organization

The course, organized into a single module, will consist of classroom lessons and practical laboratory training. It will be taught in English.

4. Teacher

The course will be taught by Prof. M. Paola Carpanese and Dr. Davide Cademartori.

5. Duration and credits

The course (18 hours) will consist of 5 lessons, 3 hours each, and a 3 hours tutorial in the laboratory, for a total of 3 credits.

6. Activation mode and teaching period

The course will take place between February and April 2025 and a detailed calendar for lessons will be given to registered students.

7. Deadline for registration

Registration to the course must be made before June 30th, 2025. Students are requested to inform the teachers by e-mail (carpanese@unige.it) about their registration.

8. Final exam

The final exam will take place through a final discussion - agreed with the teachers and supported by slides - on the topics covered by the course. The students are requested to contact the teachers by email to establish the date of the exam.