

**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**

Thermo-chemical valorisation of waste materials

**2. Course Objectives and Description**

The course aims at providing notions to the future PhD students on the characterization and valorisation of waste materials and their sub-products.

The course will include the following topics:

- thermal and physico-chemical characterization of waste;
- thermo-chemical conversions of waste: pyrolysis, gasification and incineration;
- valorisation of sub-products: char and ashes;
- laboratory activities: simulation of thermo-chemical processes using Aspen Plus

**3. Course Organization**

The course, organized in a single module, will consist of classroom lessons and practical computer laboratory training.

**4. Teacher**

The course will be held by Dr. Cristina Moliner

**5. Duration and credits**

The course (15 hours) will consist of 4 lessons, 3 hours each, and a 3 hours tutorial in the computer laboratory, for a total of 3 credits.

**6. Activation mode and teaching period**

The course will be held in the dates: January 14<sup>th</sup>-17<sup>th</sup> from 9 to 12 in room B16. The exact date of the practical lesson will be defined during the course based on the computers lab availability.

**7. Deadline for registration**

Registration to the course must be made before December 31<sup>st</sup>, 2024. Students are asked to inform the professor by e-mail (cristina.moliner@unige.it) about their registration.

**8. Final exam**

The final exam will consist in an interview on the topics covered by the course. The students are requested to contact the teacher by email to establish the date of the exam.