The Doctoral Programme in Industrial Chemistry and Chemical Engineering (CII) is designed for students aiming in getting deep expertise in research activities as well as in the development and design of chemical processes. Courses are held at Milano Leonardo Campus.

The goal of the Doctoral Programme in Industrial Chemistry and Chemical Engineering is that of forming high professional characterized by a particular versatility and flexibility. This target can be achieved through a solid scientific preparation on a few key topics, such as transport phenomena, physical chemistry and chemistry.

The development of an original research work on a specific thematic topic, which is a relevant part of the Doctoral Programme, completes the specialized formation of the Research Doctor. As examples, the specific research activity will be focused on the following topics:

- methods and criteria through which chemical processes and industrial plants are designed and run, including also the selection of feedstocks, the economy of the process, aspects related to safety and environment;
- design and control of each unit operation and of the global plant, analyzed by computer-based mathematical modeling and simulation methods;
- the study of processes on a microscopic scale, by analyzing the thermodynamic and kinetic aspects of the process and by using, among others, specific tools for electrochemical and material science problems;
- synthesis, characterization, transformation technology and application of substances;
- design of chemical and/or biological material (synthesis, transformation, use);
- characterization of products and materials.

The PhD is typically structured in three year activity, but a fourth year is also possible.
PhD courses for twenty five credits must be achieved, but the PhD Board can decide to assign some extra credits to a student in case of lack of specific knowledge. The courses are offered by the PhD school or can be followed in other universities or in summer schools, by previous authorization of the PhD Board. Reference people for the different research areas can be found among the PhD Board members.

Career Opportunities

The research themes that characterize the PhD Programme in Industrial Chemistry and Chemical Engineering are directly related to several activities that are carried out in numerous industrial sectors. Thus, the Doctor of Philosophy in Industrial Chemistry and Chemical Engineering will be a suitable candidate for a position in chemical process companies and research institutes, both private and public, operating in the fields of research, design, production, control, and consulting.

A recent survey (run by Politecnico’s Career Service in 2020) showed that our PhD candidates are all employed after one year, in national and international companies and academic and non-academic research institutions, engaged in innovation, research and technical development. On average, the survey showed that doctors with our PhD title are paid 30% more than the corresponding employees with a master title.

Eligible students

Students holding “Laurea K disciplines: Engineering” degrees in Chemical Engineering, Materials Engineering, Industrial Chemistry and Chemistry, Safety and Prevention Engineering. The programme is also open to graduates in other scientific faculties.

Scholarships

Around 7 scholarships of 1325 € (or more) of monthly net income are available for students each year, as well as some thematic scholarships for PhD thesis topics supported by industry or by national and EU projects. Students without a scholarship are usually supported by the research group. A yearly budget for conference attendances or purchase of educational material is also foreseen, as well as an extra financial support for the period abroad.

Contacts

For further information, please visit the following web site:

www.polimi.it/phd

or contact the School of Doctoral Programmes - Politecnico di Milano at phdschool@polimi.it.

http://phd.chem.polimi.it/

or send an e-mail to phd-ciic@polimi.it