UNIVERSITÀ
DEGLI STUDI
DI MILANO

Master's degree programme in **Industrial chemistry**

FACOLTÀ DI
Scienze e Tecnologie

Applications and admissions

Open, subject to entry requirements.

Admission requirements

The curricular prerequisite to be admitted to the selection procedures at the Master Degree course in Industrial chemistry are those peculiar of the L-27 class of Italian bachelor's degree courses, and in particular:

- at least 20 ECTS in disciplines of mathematics, information technology and physics
- at least 70 ECTS in discipline groups belonging to the distinguishing areas included in the L-27 class table:
  - analytical and environmental chemistry (CHIM/01 and CHIM/12);
  - inorganic and physical chemistry (CHIM/03 and CHIM/02);
  - industrial chemistry and industrial engineering and technology (CHIM/04, CHIM/05 and ING-IND/21-22, ING-IND/25);
  - organic chemistry and biochemistry (CHIM/06, BIO/10-12).

All other students must demonstrate to have the curricular requirements of the graduates of the class L-27. Different curricular profiles will be evaluated by the Commission for the Access to Industrial Chemistry.

The personal skills of each candidate will be ascertained through the European Chemistry tests (EChemTest) followed by an interview on topics related to the subjects covered in the fundamental courses of the bachelor's degree in Industrial Chemistry with a special examining commission appointed by the Teaching Council.

The minimum entry requirement in English proficiency is level B1 ("lower intermediate") of the Common European Framework.

English language

In order to get their degree, students are required to certify their knowledge of the English language at the B2 level, to be passed before entering the Thesis research Lab.

Objectives

The Master's Degree programme in Industrial Chemistry complies with the European standards of reference for Sciences and technologies of Industrial Chemistry and provides technical skills in the disciplines of chemistry and industrial chemistry and in their applications.

The Master Degree course in Industrial chemistry aims at preparing chemists with a good knowledge of theory and practical aspects of the industrial production in different areas of chemistry, specifically concerning the product-process relationship, as well as of economics and management and learn to work independently and to take full responsibility of projects and structures.

The Master Degree program in Industrial Chemistry, entirely taught in English, is designed to train high-quality human capital, capable to take on the challenges of the global economy, favoring access of graduates in Industrial Chemistry to the world labor market. The key role given to English in this learning program is justified by the fact that English language has long since represented a global communication tool in economy and society, which will contribute to the achievement of the prefixed quality objectives.

Career prospects

Graduates in Industrial Chemistry will be able to carry out, among others, the following activities: promotion and development of the scientific and technological innovation; planning and management of industrial technologies; holding functions of high responsibility in the industrial, environmental, health care, and public service sectors.

Graduates in Industrial Chemistry are expected to find employment in: research and development in chemical industries; design and management of pilot and chemical plants; industries and research centers working in diversified sectors of either conventional or innovative fields.

The acquired competences allow graduates to have open access to several industrial sectors such as those of polymeric materials, food industry, agrochemicals, additives, auxiliaries, materials for electronics, ecology, intellectual property (patents) and business management.

For the graduate of this class, enrolment in the National Federation of the Order of Chemists and Physicists is possible, after passing the State Exam.

Degree syllabus

I year

COMPULSORY LEARNING ACTIVITIES	ECTS
Advanced industrial chemistry with lab	9
Chemical processes and industrial plants	6
Economics and management	6
The student must earn 9 ects by selecting one from the following items: - Applied organic chemistry with lab - Energy: source, conversion and storage with lab - Inorganic materials with lab	9

II year

COURSES	ECTS
Free-choice elective courses (the student must earn 12 ects by choosing freely between all the teachings activated, offered by the University, provided they are coherent with the educational project)	12
The student must earn 12 ects by selecting two of the following items: - Patents and Management of Innovation *(Course subscribed by Master in Chemical sciences)* - Chemical Safety - Medicinal chemistry *(Course subscribed by Master in Chemical sciences)*	 6 6 6
Thesis work and Final dissertation	39

The student must earn 24 ects by selecting 4 of the following items; one must belong to each CHIM/02, CHIM/03, CHIM/06 classes:		
DISTINCTIVE COURSES	SSD	ECTS
Catalytic methodologies in organic synthesis *(Course subscribed by Master in Chemical sciences)*	CHIM/06	6
Concepts and methods in organic synthesis	CHIM/06	6
Design and optimization of chemical plants	ING-IND/25	6
Environmental electrochemistry *(not active a.a 2023/2024)*	CHIM/02	6
Fundamentals of instrumentation for chemical industry	CHIM/04	6
Industrial processes and scale-up	CHIM/04	6
Metal science and corrosion	CHIM/02	6
Nanotechnology of Inorganic Materials	CHIM/03	6
Photochemical processes and Photocatalysis *(Course subscribed by Master in Chemical sciences-not active a.a 2023/2024)*	CHIM/02	6
Recycle and life cycle assessment (LCA) of products and processes	CHIM/04	6
Advanced Chemistry and Physics of Polymers	CHIM/04	6
Analytics for chemical industry	CHIM/01	6
Environmental control and sustainability management	CHIM/12	6
Heterogeneous catalysis	CHIM/02	6
Physical chemistry of formulations	CHIM/02	6
Polymer degradation and stability	CHIM/04	6
Process development	CHIM/04	6
Synthetic methods in biotechnology	CHIM/06	6

Other compulsory activities

- English proficiency B2 level (3 ECTS)

INFO

Disciplinary classification: Industrial chemistry (LM-71)

Duration: 2 years (120 ects)

Attendance: it is mandatory to attend the Laboratory courses/modules. In all the other cases the attendance is strongly suggested.

Location:
- Department of Chemistry - via Golgi, 19 - Milano

For information:
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Websites:
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For further information: www.unimi.it - Education