

University Master's Degree in NANOSCIENCE, MATERIALS AND PROCESSES: CHEMICAL TECHNOLOGY AT THE FRONTIER

The aim of this programme is to train new professionals in the field of nanotechnology, materials and chemical engineering. It is of particular interest for graduates in any of the branches of the experimental sciences and technologies (chemistry, chemical engineering, biochemistry, biotechnology, physics, quantum chemistry, biological chemistry, microbiology, etc.) and it clearly prepares them for future research.

The students will acquire the skills required for them to join universities, research institutes, industry and services with a strong sense of innovation, development and entrepreneurial vision.

Aimed at

The profile of the ideal candidate is that of an engineering graduate in an industrial discipline, preferably chemical engineering, who wishes to work as a project leader.

Associated doctoral programme:
Nanoscience, Materials and Chemical Engineering

Academic coordination: Dr. Jordi Riu Rusell

Career opportunities

·Research at universities and research institutes. The master's degree is a requirement for being admitted to a PhD programme and the key to a future career as a researcher.

·Research, development and innovation in industries based on new scientific and technical knowledge (biotechnology, microelectronics, telecommunications, energy storage, new materials, etc.) and traditional industries (chemical, pharmaceutical, biomedical, ceramics, textiles, etc.) interested in innovation.

·Management, control and strategic planning of nanotechnological techniques, products and processes in the electronics industry, telecommunications, biomedicine, biotechnology, pharmacology, etc.



WHERE

Escola Tècnica Superior d'Enginyeria Química
Av. dels Països Catalans, 26 43007 Tarragona

LANGUAGE

English

DURATION

60 ECTS
October 2017 to September 2018

TIMETABLE

Face-to-face
Monday to Friday from 9.00 a.m. to 5.00 p.m.

PROGRAMME

FIRST YEAR: Compulsory subjects

	CREDITS
· Product and Process Design **	5
· Materials Science and Engineering **	5
· Nanoscience and Nanotechnology **	5
· Design, Planning and Management of Research **	3
· Multidisciplinary Seminars	3
· Final Master's Project **	24

** These subjects make up the competences required for the subject Career Counselling Citizenship.

OPTIONAL SUBJECTS:

Fundamentals

· Macro and Supramolecular Chemistry	4.5
· Numerical Calculus	3
· Advanced Thermodynamics and Molecular Simulation	6
· Introduction to Computational Chemistry	6

Tools and Processes

· Nanosensors	3
· Nanofabrication and Nanoprocessing	4.5
· Clean Room Processes	3
· Introduction to Characterization Techniques Experimental Design	3
· Experimental Design	3
· Data Analysis	3
· Tools for the Design and Sustainable Production of Structured Foods	6

Materials

· Membrane and Microcapsule Technology	3
· Science and Technology of Aerosols	3
· Surfaces and Nanostructuring	3
· Materials: Symmetry and Properties	3
· Nanostructured Polymeric Materials	4.5
· Nanocatalysis	4.5

Biotechnology

· Nanobiotechnology	4.5
· Nanoscale Biochemistry	3
· Biophysics	3
· Chemoinformatics Applied to Nutritional Research	3

Mobility:

The Master's Degree offers students the possibility of doing their thesis (6 months) at the Department of Chemical Engineering, Northeastern University, Boston MA USA.

Collaborating Institutions:

- Universitat de Barcelona
- Institut de Microelectrònica de Barcelona, ICIQ

Grants

- URV Master's Degree grants
- Fundació Catalunya-La Pedrera

