

University of Trento  
**Department of Industrial  
Engineering - DII**  
English-taught Masters  
[www.dii.unitn.it/en](http://www.dii.unitn.it/en)



UNIVERSITY  
OF TRENTO - Italy

Department of Industrial Engineering



# The Department of Industrial Engineering

The Department of Industrial Engineering (DII), located on the eastern hills of the city of Trento, was recently established in our University by merging different groups already active in the former Faculty of Engineering and one group from the Faculty of Economics. Among others, the group of Materials Engineering is the largest one and has his roots in the former Department of Materials Engineering which was the first one established in Italy, dating back to 1985. In brief, the main activities in the DII are in the fields of: Materials Engineering, Mechanics, Mechatronics, Electronic-and Micro-electronics systems, Managerial Information Systems, and Optimization Methods and Models to support decision making. Research spans from structure of materials, their features and applications, to new materials and technologies; from automation systems of processes and machineries to energy production and storage; from the design and implementation of mechanical/electronic integrated devices - with specific functions in innovative applications - to the optimization of products and processes. The Department cooperates with various national and international research institutions and is engaged in basic and applied research projects, with a strong connection to the industrial world.

The Department of Industrial Engineering offers one undergraduate course in Industrial Engineering (in Italian) and two Master Courses in Materials and Production Engineering and in Mechatronics Engineering (both in English). Finally, the DII also offers a PhD program in Materials, Mechatronics and System Engineering.

Several student exchange programmes are active, including the double degree program “EIT Master School in Sustainable Materials (SUMA)” and several others programmes with many European and US universities. The Department coordinates three Erasmus Mundus projects: Bridging the Gap, One More Step, and Swap and Transfer which support student and Faculty mobility between the University of Trento and several Universities in the Far East (China and Mongolia) and South East Asia (Thailand, Vietnam, Singapore). Moreover, the Department of Industrial Engineering is part of the BEAM project which aims at promoting intercontinental mobility and cooperation at master level in the field of biomedical engineering and regenerative medicine with the Queensland University of Technology and the University of Sydney in Australia.

The DII counts 47 Faculty (Full, Associate and Assistant professors), 15 Post-Doctoral Researchers and 22 Administrative and Technical Staff. The Doctoral School has 45 students and enrolls 12 new PhD students each year.

# Living in Trento

Trento is a city of around one hundred thousand inhabitants, located in the Dolomites mountain region, Trentino, of which it is the capital. Trento is a cosmopolitan city, with highly developed and organized modern social services. The city has a picturesque Medieval and Renaissance historic centre, with ancient buildings such as the cathedral and the Castello del Buonconsiglio. The city often ranks high out of all 103 Italian cities for its quality of life, standard of living and business and job opportunities.

In order to facilitate the arrival and stay of international students, the University of Trento operates a “Welcome Office”. The Welcome Office provides international students with a dedicated service by supporting them in the necessary administrative procedures related to their arrival and stay in Trento. The office facilitates the integration of international students in the University and in town and encourages the multi-cultural exchange between international and national students. The Welcome Office periodically organizes initiatives and social and cultural events open to all international guests with the aim to help them settle down, both at University and in the local community.

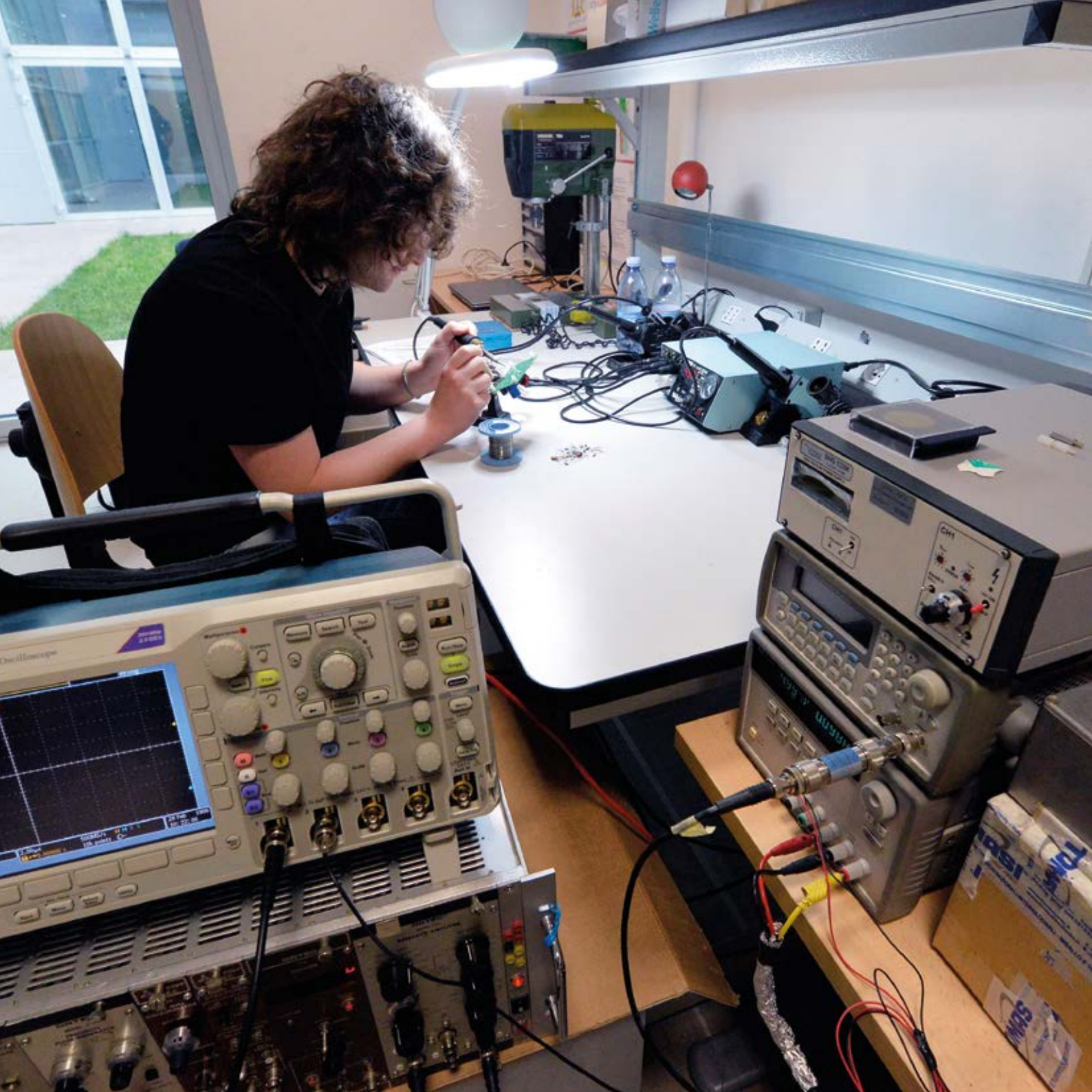
International students who come to Trento participating in a bilateral agreement, or in an international mobility programme, are entitled to on-campus accommodation at affordable costs.

Opera Universitaria is the provincial institution responsible for the management and organization of student accommodation facilities.

International students have free access to the five university libraries and receive a University card to access the five University canteens.







# Master of Science in Materials and Production Engineering (MSc MPE)

The Master of Science in Materials and Production Engineering (MPE) is taught in English and trains engineers and researchers who will be able to create and manage technology innovation in areas requiring a deep knowledge of base sciences and engineering, with particular attention to the development and design of new materials.

MPE graduates will master technologies, devices, systems and infrastructures for the production, customisation and design of traditional and innovative materials, their use in specific industrial applications in the field of chemistry, mechanics, textiles, optics-electronics, biotechnologies and, more in general, for the development, production and use of goods and services.

The Master's course usually lasts 2 years and comprises training activities corresponding to 120 credits, organized in 2 semesters.

Training activities include in-class lessons and laboratory and class practical lessons. The student's effort is measured in ECTS credits. Each credit corresponds to 25 hours of work, including hours of individual study. Training activities each ECTS entails at least 10 hours of class lessons.

The course is divided into four curricula:

- Manufacturing and Product Development aims to train Materials Engineers with deep knowledge of production and processing technologies
- Energy, Environment and Sustainable Development aims to train Materials Engineers with deep knowledge of materials and processes for energy production and transformation;
- Bio-related and Functional Materials focuses on the engineering and use of materials for biomedical and functional applications
- Industrial Processes Management and Optimization aims to train Materials Engineers with knowledge in the sectors of Operational Research and Industrial Management.

## Programme overview

<b>Degree Awarded</b>	Master of Science in Materials and Production Engineering
<b>Intake</b>	September
<b>Duration</b>	2 years
<b>Teaching Language</b>	English
<b>Application deadlines</b>	non-EU citizens living abroad: January/February each year
<b>Admission requirements</b>	Bachelor's degree in Industrial Engineering (mechanical, chemical, materials) or related fields; B1 English language knowledge
<b>Tuition fees and funding</b>	Students may benefit from partial or total exemption from university tuition fees and grants to cover part of the living expenses
<b>Further information</b>	<a href="http://international.unitn.it/mastermat">international.unitn.it/mastermat</a>
<b>Contacts</b>	<a href="mailto:dii.mastermaterials@unitn.it">dii.mastermaterials@unitn.it</a>

## Career opportunities

There is a strong demand for industrial engineers in many different types of manufacturing plants. Graduates in Materials and Production Engineering (MPE) will easily fit the requirements to fulfil this demand. This is because graduates in MPE have the required knowledge of basic sciences and engineering, but they also master specific aspects of the production and processing of metals, polymers, ceramics, glass, composites and biomaterials for applications in the chemical, mechanical, electrical, electronic, telecommunications, energy and construction sectors. MPE graduates will also easily find job opportunities in any research and development laboratory working on the synthesis, processing and characterization of new materials. In detail, graduates in Materials and Production Engineering will be able, by properly choosing the optional curriculum and activities, to work in:

- companies and industries;
- laboratories and research centres;
- the field of the scientific culture dissemination;
- services;
- public administration.



## Admission requirements

To access the Master of Science in MPE applicants must have:

- a Bachelor's degree in any discipline of Industrial Engineering (e.g. Materials, Chemical, Mechanical, Electric Engineering) or in any Industrial Engineering-related field awarded by an internationally recognized university, along with a corresponding study plan which proves the basic knowledge and competencies acquired in Mathematics, Physics, Chemistry and Industrial Engineering. Applicants who will graduate after the application deadline must provide a certificate of enrolment stating the expected graduation date. Once selected, these applicants need to submit a copy of the degree certificate;
- have a B1 level of English according to the Common European Framework of Reference for Languages (CEFR), proved by one of the English language certifications listed in the file available at: [international.unin.it/mastermat](http://international.unin.it/mastermat). Applicants who graduated with a Bachelor's degree awarded by an internationally recognized university whose official teaching language is English have to submit a written statement issued by the their university stating that English is the official teaching language. Citizens from an English-speaking country and/or who have graduated in an English-speaking country do not have to submit any English language certificates, but only a self-declaration of their status.



# Master of Science in Mechatronics Engineering (MSc ME)

The Master of Science in Mechatronics Engineering aims to provide mechanical engineers with the skills needed to carry out (understanding, planning, and executing) innovation projects and to develop mechanical and mechatronics industrial products. Master's Degree students will learn modern methods (such as Quality Function Deployment) for the design, development, and, more generally, the management of the whole product life cycle and related tools/instruments/production processes, which integrate physical and mechanical principles with technologies based on automation and new materials. The MSc in ME focuses particularly on the following areas:

- mechanical innovation, through courses devoted to advanced design tools for mechanical industrial products, (from concept generation to the end of the project), testing and prototyping methods, production technologies, methods and organization, and the modelling and control of mechanical systems;
- robotics, through courses devoted to artificial intelligence techniques applied to mechanical systems, measuring and sensor fusion techniques, dynamic modelling, and the planning and control of mechanical systems applied to manufacturing and emerging sectors;
- industrial process management: includes the study of a set of topics in the area of Industrial Management, aimed at building the foundations of modelling, designing, managing and innovating industrial processes, taking into account scientific, technological, information and organizational features. The learning goals are pursued by emphasizing decision support systems, quality control systems and information systems for logistics and production management.

## Programme overview

<b>Degree Awarded</b>	Master of Science in Mechatronics Engineering
<b>Intake</b>	September
<b>Duration</b>	2 years
<b>Teaching Language</b>	English
<b>Application deadlines</b>	non-EU citizens living abroad: January/February each year
<b>Admission requirements</b>	Bachelor's degree in Industrial Engineering (mechanical, chemical, materials) or related fields; B1 English language knowledge
<b>Tuition fees and funding</b>	Students may benefit from partial or total exemption from university tuition fees and grants to cover part of the living expenses
<b>Further information</b>	<a href="http://international.unitn.it/mastermech">international.unitn.it/mastermech</a>
<b>Contacts</b>	<a href="mailto:dii.mastermechatronics@unitn.it">dii.mastermechatronics@unitn.it</a>

## Career opportunities

After successfully completing the 2-year Master's Course in Mechatronics, graduates normally find employment in the following areas:

- Product and production systems innovation
- Intelligent mechanics
- Advanced design and planning
- Management of complex systems

With this qualification, graduates will be eligible for positions in manufacturing industries, engineering companies, public organizations and municipalities, or as self-employed professionals and consultants. They can aspire to high level technical and management roles. The wide-ranging career possibilities encompass working as a project engineer, as a manager responsible for the developing and testing of prototypes, as a project manager or a technical director. Mechatronics engineers can therefore be involved in almost every possible industrial sector at different levels, from application development to manufacturing to advanced research. Further possibilities may be found in consulting and services companies.

## Admission requirements

To access the Master's degree programme in ME applicants must have:

- a Bachelor's degree in any discipline of Industrial Engineering (e.g. Mechanical, Mechatronics, Chemical, Materials Engineering), or Electronic Engineering (e.g. Electronic, Control, Automation Engineering), or in any Industrial Engineering-related field awarded by an internationally recognized university, along with the corresponding study plan which proves the basic knowledge and competencies acquired in Mathematics and Physics. Applicants who will graduate after the application deadline must provide a certificate of enrolment stating the expected graduation date. Once selected, these applicants must submit a copy of their degree certificate.
- a B1 level of English according to the Common European Framework of Reference for Languages (CEFR), proved by one of the English language certifications listed in the file available at: [international.unitn.it/mastermech](http://international.unitn.it/mastermech). Applicants who graduated with a Bachelor's degree awarded by an internationally recognized university whose official teaching language is English have to submit a written statement issued by the their university stating that English is the official teaching language. Citizens from an English-speaking country and/or who have graduated in an English-speaking country do not have to submit any English language certificates, but only a self-declaration of their status.









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