

# MSc in Management and Industrial Systems Engineering - MISE

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## Master of Science in Management and Industrial Systems Engineering - MISE

Modern industrial systems are distinguished by a **relevant complexity** which requires a **holistic approach** for their appropriate management. The recent evolution and pervasiveness of modern digital technologies, which influence **new productive and economic paradigms** due to their cognitive and connectivity potential, is **significantly modifying the working environment** and the **role of the engineer** in the industry.

Engineers are now required to face the **challenges posed by technological innovation** and be able to **adopt and manage** them within the systemic complexity in which they work. **Interdisciplinary and multi-faceted approaches** are typically required along with in-depth knowledge and technical skills, as well as extensive knowledge about economics and organizational structures.

The Master's degree program in Management and Industrial Systems Engineering aims to train engineers to effectively manage and govern the processes that are part of new production paradigms and the related industrial revolution. To this end, the program seeks to provide competencies in technical disciplines and in those related to management of the complex systems of modern industry. It also considers economic and organizational aspects, in addition to the challenges arising from environmental sustainability and digital technologies in industrial development.

The MISE program is specially designed for students who **already have solid knowledge in the field of industrial** engineering.

## Programme overview

### Degree awarded

Master of Science - "Laurea Magistrale" - in Management and Industrial Systems Engineering

### Workload

The total workload for each student is 120 ECTS (European Credit Transfer System)

#### Intake

September each year

# Duration

2 years full-time

Language English

### **Class size** Up to 25 students

# Fees and funding (approximate range)

- EU: 340€ 3.400€ (based on income/merit)
- Non-EU: 1.000€ 4.500€ (based on merit)
- Income/merit-based scholarships and tuition waivers available

## Admission

#### Application deadlines (check on line for updates)

- February for non-EU citizens living outside Italy
- From June to November: rolling admission for EU citizens and non-EU citizens regularly living in Italy

### **Selection criteria**

- Coherence between applicant's previous studies and the academic objectives of the Master's degree program
- Academic curriculum
- English language competence

#### Requirements

- Bachelor's degree in any discipline or related field of Management and Industrial Systems Engineering, along with a corresponding study plan which proves acquired basic competencies in Mathematics, Physics, Chemistry and Industrial Engineering.
- English at the B2 level according to the Common European Framework of Reference for Languages

#### How to apply

- Access the online application form
- Upload the required documents
- Submit your online application by the deadline
- Check online for more information and updates: www.unitn.it/mise

## **Study Plan**

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The MISE program includes **unique and innovative courses** that are aligned with the most **recent developments in academic and industrial research** that are revolutionizing modern industrial systems. These range from product customization to processes of environmental sustainability and from digitalization of industrial plants to quality and safety of production systems.

## First year

During the first year, common courses aim to provide students with a **solid foundation in engineering management and industrial systems**. On this basis, students can choose to **specialize in one of the following two curriculums in the second year**.

## Second year

The curriculum **"Design and Sustainability"** focuses on an in-depth study of engineering methodologies for the design of complex industrial systems and of innovative industrial products with a particular emphasis on the selection of materials. It considers the entire life cycle of products and their environmental impact, in terms of both greenhouse gas emissions and consumption of primary resources.

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The curriculum "**Management and Digitalization**" is aimed at training engineers in the management of complex production processes and the adoption of digital technologies which are the basis of the current industrial revolution. It also includes an in-depth focus on the field of business information systems, modern *Internet of Things* technologies for industrial applications and advanced mathematical methodologies for the optimization of complex systems.

## **Career opportunities**

Graduates with a Master's degree in Management and Industrial Systems Engineering will be a **valuable human resource** in a variety of areas, such as the entire manufacturing sector, the transformation and process industry, traditional services (transport, distribution, procurement), advanced services (banking and insurance, IT, telecommunications) as well as public administration. Master graduates will be able to carry out **high-level entrepreneurial activities** or can be employed in **business and management consulting firms**.

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MISE graduates will have knowledge and skills in the following areas:

- management of industrial production and logistics systems
- automation of production processes
- selection and implementation of industrial technologies including digital applications
- quality assurance and related certification processes.

As professionals they can take on roles ranging from the production line manager to the manager of a distribution logistics platform, from the leader of interdisciplinary teams to the manager of technological innovation projects, from the referent for process quality to the sustainability manager of a facility plant. Thanks to the broad spectrum of acquired competences and knowledge, they will also be able to find employment in applied research, as managers of different business areas, including marketing, purchasing and human resources, complex innovation projects, as well as in consulting and service companies.

Graduates may pursue a PhD in Trento (Materials, Mechatronics and Systems Engineering or Industrial Innovation), elsewhere in Italy or at the international level.



#### **CONTACT DETAILS**

#### International Mobility Office

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## www.unitn.it/mise