

# MSc

## Platforms for Digitalised Value Networks





## Global manufacturing innovation will be led by Europe

EIT Manufacturing's mission is to bring European manufacturing actors together in innovation ecosystems that add unique value to European products, processes and services and inspire the creation of globally competitive and sustainable manufacturing.

The European Institute of Innovation and Technology (EIT) is an EU body created in 2008 to strengthen Europe's ability to innovate. Today it is Europe's largest innovation ecosystem with over 2,000 partners.

The EIT supports the development of dynamic, long-term thematic partnerships (Knowledge and Innovation Communities, EIT KICs) among companies, research and higher education institutions, to face specific societal challenges. Together with their leading partners across Europe, the EIT Community offers a wide range of innovation and entrepreneurship activities: Entrepreneurial education courses, business creation and acceleration services and innovation-driven research projects. The EIT Community helps innovators turn their best ideas into cutting-edge products, services and jobs for Europe.

### Unique EIT model highlights:

- Provides access to a community that powers innovators through the entire innovation journey, from education to lab to market.
- Embraces disruptive and incremental innovation and embeds entrepreneurial education activities in its innovation activities.
- Business-oriented with strong focus on financial sustainability.
- Delivers a pan-European network strongly anchored in local innovation ecosystems.

EIT Manufacturing is an Innovation Community within the European Institute of Innovation & Technology (EIT) that connects the leading manufacturing actors in Europe. Fueled by a strong interdisciplinary and trusted community, we will add unique value to European products, processes and services – and inspire the creation of globally competitive and sustainable manufacturing.

EIT Manufacturing's approach is designed to immediately and forcefully address specific economic and societal challenges, leveraging opportunities to maximise the impact for successful European manufacturing.

Our vision is that global manufacturing innovation is led by Europe.

Our mission is to bring manufacturing actors of Europe together in innovation ecosystems.





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# General information:



## Locations:

France, Switzerland, Ireland, Italy



## Duration:

2 years



## Application period:

- 1<sup>st</sup> November – 1<sup>st</sup> February  
(recommended for NOT EU/EFTA applicants that must apply for a VISA to study in Europe)
- 2<sup>nd</sup> February – 31<sup>st</sup> March



## Language:

English



## Study Type:

Campus



## Pace:

Full-time



## What are the obtained diplomas?

2 Master's Degrees (issued by the entry and exit universities) and an EIT Label Certificate

## What is this programme about?

Platforms for Digitalised Value Networks focuses on manufacturing science, including the usage and adoption of advanced digital solutions and platforms.

# Partner Universities:



International development is at the heart of the strategy of Centrale Nantes (ECN), where 42% of the campus population is international. ECN's international policy extends to research and corporate projects: its research laboratories have strong connections with industry and enjoy a world reputation for excellence, especially in Naval Hydrodynamics, Civil Engineering, Composite & Advanced Materials, and Robotics. ECN is currently involved in European projects as coordinator or partner, and is an active member of international networks of excellence.

University of Applied Sciences and Arts  
of Southern Switzerland



The University of Applied Sciences and Arts of Southern Switzerland (SUPSI) is one of the nine professional universities recognised by the Swiss Confederation. Founded under federal law, SUPSI offers more than 30 Bachelor's Degree and Master's Degree courses, characterised by cutting-edge education that unites classical theoretical-scientific instruction with a professional orientation. Great care is given to research, carried out in key sectors through competitively acquired projects with large European and national agencies, or mandated by organisations and institutions.



**POLITECNICO**  
MILANO 1863

Founded in 1863, Politecnico di Milano is one of the most outstanding universities in the world, ranked 20th in the World, 7th in Europe, and 1st in Italy, according to QS World University Ranking by Subject – Engineering & Technology 2020. The University, which trains engineers, architects and industrial designers, has always focused on the quality and innovation of its teaching and research, developing a fruitful relationship with business and the production sector. It hosts the largest school of Engineering, Architecture and Design in Italy, with 2 main campuses located in Milan and 5 campuses based around the Lombardy region, one of the most vibrant and industrialised areas of Europe.

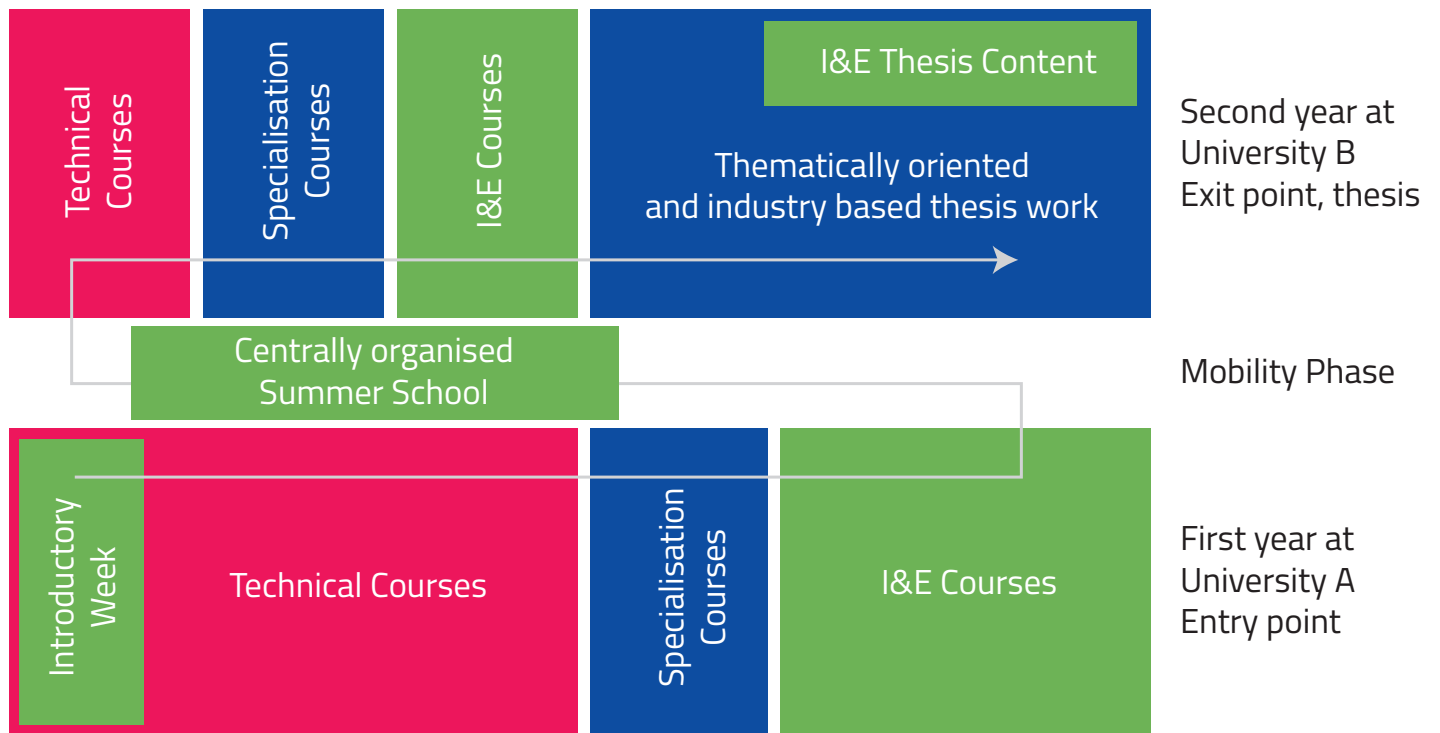


UCD is one of Europe's leading research-intensive universities; an environment where undergraduate education, masters and PhD training, research, innovation and community engagement form a dynamic spectrum of activity. Since its foundation, the University has made a unique contribution to the creation of modern Ireland, based on successful engagement with Irish society on every level and across every sphere of activity. The international standing of UCD has grown in recent years; it is currently ranked within the top 1% of higher education institutions world-wide.



Grenoble INP - Génie industriel, UGA is the Industrial Engineering School of the Grenoble Alps University Institute of Engineering and Management. The school offers a large variety of study opportunities for undergraduates, graduates, foreign students, researchers and engineers. The school has firmly established a reputation for excellence over the past 20 years, both in France and abroad. This is especially due to its unique industrial engineering courses.

# Study Path:



# Programme Structure:

Type of modules	Total credits for EIT Manufacturing Master	Total credits 1st year	Total credits 2nd year
Technical courses (TC)	45	40-50	10-20
Specialisation courses (SC)	15		
Innovation & entrepreneurship courses (I&E)	30	10-20	10-20
Master thesis (MT)	30	0	30
<b>Totals</b>	<b>120</b>	<b>60</b>	<b>60</b>







# Syllabus:

The courses offered in the programme give a common background at the Entry Universities, while the Exit Universities are generally more specialised in topics related to digital manufacturing technologies.



## 1) Technical core courses

Technical common base courses offered by all Entry and Exit Universities in the programme, complemented with the courses of the Add-On Module, are as follows, including the individual learning outcome (ILO) of each course:

### ▪ 6.1.1 Sustainable Manufacture

This course teaches students methods and tools to assess and improve processes to reduce carbon generation and natural resource use.

### ▪ 6.2.1 Additive Manufacturing

This first-year course provides the student with understanding of the technology, equipment and systems to additively transform materials into parts and assemblies through printing and laser processing.

### ▪ 6.1.2 Operations and Logistics

This course teaches students how to ensure that the right amount of goods are produced and delivered to the correct recipients, according to schedule.

### ▪ 6.1.3 Project Management

This course teaches students how to lead the work of a team to achieve goals and meet success criteria at the specified time.

### ▪ 6.1.4 Manufacturing Processes

This course teaches students the physics of equipment and processes that transform materials into parts, parts into assemblies, and assemblies into systems.

### ▪ 6.1.5 Materials

This course teaches students the mechanics of materials, including finite element analysis.

### ▪ 6.1.6 Mechanical Design

This course covers methods and tools to design parts, components, or products of mechanical nature.

### ▪ 6.1.8 Robotics and Automation

This course provides the student with knowledge necessary to design, build and maintain industrial robots and other intelligent automated equipment.

### ▪ 6.1.9 Human Machine Interactions

This course provides the student with understanding of the design and analysis of mechanisms enabling interface between humans and machines.

### ▪ 6.1.10 Statistics and Machine Learning

This course provides the student with understanding of the statistical methods used to design, build and run machine learning solutions, and looks at how to apply them to business and technical problems in the manufacturing context.

### ▪ 6.1.11 Quality Management

This course provides the student with knowledge of how to oversee processes to ensure a level of quality and conformance – including by means of metrology.

### ▪ 6.1.12 Additional University Required Courses

Certain universities have additional degree course requirements, including engineering courses not specifically related to manufacturing. These can include mechanical engineering degree requirements or writing proficiency requirements.



## 2) Specialisation Courses

Technical specialisations offered by the Entry and Exit Universities in the programme, along with the I&E courses, are:

### ▪ Digitalization of Manufacturing Systems

This course provides the student with understanding on technology-enabled manufacturing that uses the latest developments in Information and Communication Technologies (ICT) to transform, augment and boost traditional manufacturing through new digital technologies and thinking.

### ▪ Design of enterprise information and collaborative information systems

This course provides the student with understanding of the main methods and tools used in the development projects of an enterprise information system and explains how such development projects are managed.

### ▪ Integrated design for Industry 4.0 and smart products and services

This course provides the student with an understanding of the main concepts and methods of integrated design engineering, looking at how it is applied to new approaches related to product service systems.

### ▪ Operations Management and Analytics

This course provides knowledge of optimum configuration and control of industrial and service processes – especially on the basis of formal models and methods of data analysis – as a means of guaranteeing quality and availability standards.





## Admission:

### Who can apply to the Master School?

- Students who have a Bachelor of Science Degree worth 180 ECTS in a field related to the track.
- Students in their final year of Bachelor of Science studies may also apply and, if qualified, receive conditional acceptance. They will have to present their degree certificate to the Entry University before enrolment, at the latest.
- The specific required admission diplomas are: B.Sc. degree in Mechanical Engineering, Electrical Engineering, Computer Engineering, Business Engineering, Management Engineering, Computer Science, Information Technology, Industrial Engineering or equivalent.
- Students' Bachelor of Science degree should provide the student with basic competence in the following fields: engineering analysis, production operations, and mathematics - including calculus, algebra, and mathematical statistics (basic competences in Python).

### What are the language requirements of the EIT Manufacturing Master School?

All programmes are taught in English. Students are requested to provide an English certificate (IELTS, TOEFL, etc.) to prove their English proficiency.\*

Minimum certificate grade is:

- IELTS  $\geq 6.5$ , with no section lower than 6. A photocopy of the IELTS test result together with your application documents is sufficient.
  - TOEFL  $\geq 93$  (minimum 21 for writing, 19 in the other sections).
- English test results from TOEFL should be sent directly from the ETS test centre to the EIT Manufacturing Master School Office (EIT Manufacturing Master School code number: C898).
- CAE: grades A – C are accepted.
  - CPE: grades A – C are accepted.

\*The TOEFL Test can be waived under certain conditions, please refer to the website for more details.



# Finance and Scholarships:

## Tuition fees per year\*:

€ 8.000	for EU/EFTA candidates
€ 15.000	for non EU/EFTA candidates

*\*Fees include all programme expenses and insurance but do not cover living expenses and local university text books.*

## How are scholarships awarded?

Scholarships may include: mobility grant, subsistence costs support and fee waivers. Scholarships are awarded to a sub-set of students based on a ranking that considers:

- Academic grades
- Gender
- RIS-country citizenship
- Study track

All students are eligible for scholarships and they don't need to present any specific request for it. The EIT Manufacturing Master School will rank the students and offer the scholarships at the time of the student admission.

RIS countries: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain.





## A word from EIT Manufacturing:



**Paola Fantini**

*Education Director EIT Manufacturing*

"In the EIT Manufacturing Master programmes, students will gain the capabilities, opportunities and support from the network to become real entrepreneurs and change makers, to pursue the career they want to take. They will learn to question the status-quo, identify challenges and opportunities, mobilise energies, develop and promote innovative solutions. They will become skilled at dialoguing, reasoning and negotiating with peers and other stakeholders, in addition to acquiring excellent technical and business competences."



**Lucia Ramundo**

*Master and PhD Programme Manager*

"Our programmes allow students to become experts in innovative manufacturing fields from both the technological and business and management side. We develop their leadership, creativity and all soft skills needed to navigate the complex industrial landscape, while also taking into account the needs of society."

The Platforms for Digitalized Value Networks (PD) programme is a Master of Science level programme within the EIT Manufacturing Master School. The EIT Manufacturing Master School is a highly prestigious Manufacturing Engineering and Science education provider on an advanced level with a focus on Innovation and Entrepreneurship (I&E). The education at EIT Manufacturing Master School combines technical competence with skills in Innovation and Entrepreneurship. EIT Manufacturing Master School students will be an elite group of forthcoming engineers, operators, innovators and other relevant professionals.





# Making innovation happen!

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## Keep up with the latest on:

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