MASTER School

MSc

Additive Manufacture for Full Flexibility

eit Manufacturing

Co-funded by the European Union

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 across Europe: 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 bnetwork 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, 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 a successful European manufacturing.

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

Our mission is to bring manufacturing actors of Europe together in innovation ecosystems that add unique value to European products, processes, services – and inspire creation of globally competitive and sustainable manufacturing.

MASTER School

The programme

University partners

The syllabus

Admission and Finance

eit Manufacturing

Co-funded by the European Union

TABLE OF CONTENTS

GENERAL INFORMATION

Locations: Austria, Finland, Ireland, Italy, Switzerland
Duration: 2 years
Application deadline: 1st March 2022
Language: English
Study Type: Campus
Pace: Full-time

What is this programme about?

Additive Manufacturing for Full Flexibility (AM) is a combination of studying manufacturing science including physics of additive manufacturing processes, mechanical design including exploiting the design freedoms enabled for more customized products and services, and production management including the flexibility enabled for smaller lot production.

What are the obtained diplomas?

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

Entry University

Aalto University
School of Engineering

POLITECNICO
MILANO 1863

UCD
DUBLIN

University of Applied Sciences and Arts
of Southern Switzerland
SUPSI

Exit University

Aalto University
School of Engineering

University of Applied Sciences and Arts
of Southern Switzerland
SUPSI

TU WIEN
TECHNISCHE
UNIVERSITÄT
WIEN
Vienna | Austria

PARTNER UNIVERSITIES

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 engieers, architects and industrial designers, has always focused on the quality and innovation of i teaching and research, developing a fruitful relationship with business and productive world. 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 industrialized are of Europe.

Aalto University is where science and art meet technology and business. By merging three leading Finnish universities in 2010, Aalto was founded to work as a societally embedded research university.

Aalto University
School of Engineering

University of Applied Sciences and Arts of Southern Switzerland
SUPSI

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 which unites classical theoretical-scientific instruction with a professional orientation. Great care is given to research, carried out in key sectors on competitively acquired projects with large European and national agencies or mandated by organisations and institutions.

The TU Wien is Austria's largest research and educational institution in the field of technology and natural sciences. More than 4,000 scientists are researching "technology for people" in five main research areas at eight faculties. The content of the studies offered is derived from the excellent research. More than 27,000 students in 55 degree programmes benefit from this. As a driver of innovation, TU Wien strengthens the business location, facilitates cooperation and contributes to the prosperity of society.

TU WIEN
TECHNISCHE UNIVERSITÄT WIEN
Vienna | Austria

UCD DUBLIN

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.

SYLLABUS*

Type of Modules	Total Credits for EIT Manufacturing Master	Total credits Year 1	Total Credits Year 2
Technical courses	45	40-50	10-20
Specialization courses	15		
Innovation & entrepreneurship courses	30	10-20	10-20
Master Thesis	30	0	30
Total	120	60	60

* The syllabi presented are indications of the classes for the year and may differ

Courses and Learning Outcomes

The courses offered in the programme give a common background at the Entry universities, while the Exit universities are generally more specialised on the Digital Manufacturing Technologies related topics.

Technical core courses	
Sustainable Manufacture	This course teaches students methods and tools to assess and improve processes to reduce carbon generation and natural resource use.
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.
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.
Manufacturing Processes	This course teaches students the physics of equipment and processes that transform materials into parts into assemblies into systems.
Materials	This course teaches students the mechanics of materials, including finite element analysis.
Mechanical Design	Methods and tools to design parts, components, or products of mechanical nature.
Digitalization of Manufacturing Systems	This course provides the student with understanding and improvement of manufacturing systems to flexibly manufacture products globally.
Robotics and Automation	This course provides the student with knowledge necessary to design, build and maintain industrial robots and other intelligent automated equipment.
Human Machine Interactions	This course provides the student with understanding of the design and analysis of means to interface between humans and machines.
Statistics and Machine Learning	This course provides the student with understanding of the design and analysis of means to interface between humans and machines.
Quality Management	This course provides the student with understanding of overseeing processes to ensure a level of quality and conference, including metrology.
Additional University Required Courses	Certain universities have additional degree course requirements, including engineering courses not specifically related to manufacturing. This can include mechanical engineering degree requirements or writing proficiency requirements.

Specialization Courses	
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.
Design for Additive Manufacturing	This second year course provides the student with means to optimized additively manufactured parts and assemblies, exploiting the freedom allowed. This include lightweighting through topological optimization and non-homogenous material properties.
Additive Manufacturing Technologies	This course provides the student the ability to differentiate between multitude of possibilities available across the palette of additive manufacturing technologies and materials
Additive Manufacturing Project	This course will provide hands on experience developing additive manufacturing technology or systems.

ADMISSION

Who can apply to the Master school?

- Students who have a Bachelor of Science Degree of 180 ECTS in a the field related to the track.
- Students in their final year of Bachelor of Science studies may also apply and if qualified, receive a conditional acceptance. They will have to present their degree certificate to the entry university before enrolment, at the latest.
- The specific preferred admission diplomas are: B.Sc. degree in Mechanical Engineering, Industrial Engineering or equivalent degrees.

Other possible B. Sc degrees are : Electrical engineering, computer engineering, computer science, information technology or equivalent

- Students Bachelor of Science degree **must** provide the student with basic competence in the following fields: engineering design, analysis, production operations, and mathematics including calculus, algebra, and mathematical statistics.*

What are the language requirements of the EITM Master School?

All programmes are thought in English.
Students are requested to provide an English certificate (IELTS, TOEFL, etc.) to prove their English proficiency*
Minimum certificate grade is:

- IELTS >= 6.5, with no section lower than 6

A photocopy of the IELTS test result together with your application documents is sufficient.

- TOEFL >= 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 countries 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.

MASTER School

A WORD FROM THE 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, mobilize 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 Program Manager

Our programmes allow students to become experts in innovative manufacturing fields from both 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 Additive Manufacture for Full Flexibility programme is a Master of Science level programme within the EIT Manufacturing Master School. The EITM 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.

EIT MANUFACTURING

Making innovation happen!

Headquarters
Paris-Saclay,
Nano-INNOV,
2 Boulevard Thomas Gobert,
91120 Palaiseau, France

CLC West
Donostia/San Sebastian
clcwest@eitmanufacturing.eu

CLC Central
Darmstadt
central@eitmanufacturing.eu

CLC North
Gothenburg
info_north@eitmanufacturing.eu

CLC South
Milan
clcsouth@eitmanufacturing.eu

CLC East
Vienna
east@eitmanufacturing.eu

About EIT Manufacturing

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, services – and inspire the creation of globally competitive and sustainable manufacturing.

Keep up with the latest on:

masterschool@eitmanufacturing.eu

eit Manufacturing

Co-funded by the European Union