

WHY to Enroll?

A unique master's degree program, halfway the Mechanical Engineering and the Energy Engineering

The Master's Degree in Mechanical Engineering for Energy and Environment (IMEA) is unique in Italy, aimed at training professional profiles between those of Mechanical Engineering and those of Energy Engineering. It provides highly qualified innovative contents to educate engineers with a solid and rigorous methodological background.

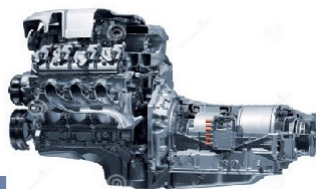
Graduates of the IMEA study program achieved excellent employment results in the Mechanical Engineering area (98% of IMEA graduates are employed three years after the Master's degree, Source Almalaurea 2021, www2.almalaurea.it), thanks to transversal job opportunities in several sectors, such as industrial, civil, consultancy and services.

The strong points of the IMEA program are the diversified educational offer (more than 30 specialized courses on three curricula) and the opportunity of pre-degree internships that can be pursued both in companies and in research institutions, both in Italy and abroad through international exchange programs (ERASMUS+ agreements, bilateral agreements between universities, etc.)

Coordinator

Prof. Fabio Bozza - fabio.bozza@unina.it

Example applications related to IMEA program



Links

General Info for International student mobility

www.international.unina.it/welcome-message/

School «Politecnica e delle Scienze di Base»

www.scuolapsb.unina.it

Department of Industrial Engineering

Piazzale Tecchio, 80 – 80125 Napoli

www.dii.unina.it

Masters' studies in Mech Eng for Energy and Environment

meccanica.dii.unina.it/index.php/Imea

Contact person

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Student's Guide

meccanica.dii.unina.it/index.php/Imea

Instagram Channel

[meccanica.uninaofficial](https://www.instagram.com/meccanica.uninaofficial)



ENGINEERING

MASTER'S DEGREE IN MECHANICAL ENGINEERING FOR ENERGY AND ENVIRONMENT IMEA



DIPARTIMENTO DI
INGEGNERIA
INDUSTRIALE

academic year
2023-2024

LEARNING OUTCOMES

IMEA graduates will be able to face recurring design problems typical of the mechanical engineering sector, particularly related to the design of components and plants for the production and conversion of energy, the design and optimization of powertrain units, the thermo-economic optimization of energetic systems, the environmental impact audit, and the analysis of the most innovative options for the energy production from renewable sources or polygeneration systems. These competences cross different fields of the industrial, civil and services areas, including the consultancy. Three pre-defined training curricula are proposed (**Innovative Energy Systems, Advanced Energy Management, Propulsion Systems**), together with the possibility to individually design a personal study path in close cooperation with the teaching staff of the whole study program.



UNINA racing team supported by students and teachers of the IMEA course

Enrollment

Enrollment in the LM-IMEA requires the possession of a three-year university degree or other equivalent qualification obtained abroad. For registration, in compliance with art. 6 paragraph 2 of Ministerial Decree 270/04, specific access criteria are required concerning the possession of curricular requirements and prerequisites of adequacy of the student's personal preparation.

Details in:

meccanica.dii.unina.it/index.php/lmea/orientamento-lmea/requisiti-di-accesso-lmea

TRAINING PLAN

CFU = University Formative Credit

Mandatory Courses for all curricula		18 CFU
○ Heat Transfer		9 CFU, 1st Year
○ Aero-Thermodynamics of Fluid Machinery		9 CFU, 1st Year
Key courses (mandatory / at choice)		48 CFU
Curriculum Innovative Energy Systems:		
○ Gas Turbine Based Power Plants		9 CFU, 2nd Year
○ Techniques and Models for Refrigeration		9 CFU, 2nd Year
○ Wind Energy Conversion System		6 CFU, 2nd Year
○ 1 course at choice between:		6 CFU, 2nd Year
▪ Management of Advanced Thermodynamic Systems		
▪ Solar Energy Technologies		
○ 2 courses at choice among:	9 CFU, 1st/2nd Year	
▪ Applied Acoustic		
▪ Heating and cooling systems		
▪ Heat Generation Plants		
▪ Fluid Machinery Design Principles		
Curriculum Advanced Energy Management:		
○ Sustainable Energy	9 CFU, 1st Year	
○ Laboratory of Thermodynamic Systems Optimization	6 CFU, 1st Year	
○ Thermo-Fluid-Dynamic Measurements	9 CFU, 2nd Year	
○ Advanced Technologies for Energy Systems	6 CFU, 2nd Year	
○ 2 courses at choice among:	9 CFU, 1st/2nd Year	
▪ Heating and cooling systems		
▪ Heat Generation Plants		
▪ Measurements and Environmental Impact of Machinery		
▪ Computational Thermal-Fluid-Dynamic		
Curriculum Propulsion Systems:		
○ Internal Combustion Engines	9 CFU, 1st Year	
○ Hybrid Propulsion Systems	6 CFU, 1st Year	
○ Fluid Power and Pneumatic Systems	9 CFU, 2nd Year	
○ 1 course at choice between :	6 CFU, 2nd Year	
▪ Calibration and Control of Power Units		
▪ Modeling and Optimization of Power Units		
○ 2 courses at choice among:	9 CFU, 1st/2nd Year	
▪ Applied Acoustic		
▪ Fluid Machinery Design Principles		
▪ Measurements and Environmental Impact of Machinery		
▪ Computational Thermal-Fluid-Dynamic		
Integrative courses	(*) (all curricula)	15 CFU
Self-chosen courses	(*) (all curricula)	15 CFU
Other educational activities		3 CFU
Placement and Master Thesis		21 CFU
Minor in Green Technologies (*)		12 extra-curricular CFU
(*) meccanica.dii.unina.it/index.php/lmea/manifesto-lmea		

JOBS AND CAREER OPPORTUNITIES

The Master's Degree in Mechanical Engineering for Energy and Environment aims to train the following professional figures, who find wide national and international employment opportunities:

- Designer of energy systems and components in the civil and/or industrial sector
- Expert in the production and conversion of energy from traditional and renewable sources
- Expert in advanced energy management in the civil and/or industrial sector
- Expert in the design and optimization of fluid machines
- Expert in the design and optimization of propulsion systems with low environmental impact
- Expert in building thermo-physics and technological systems serving civil and industrial buildings

CAMPUS AREA

The educational activities take place in various locations in Fuorigrotta (piazzale Tecchio, 80; via Claudio, 21; via nuova Agnano), where study rooms, libraries and laboratories are also available.

