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 train engineers with a solid and rigorous methodological background.

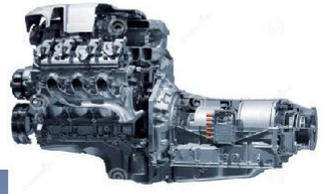
Graduates of the IMEA study program had better employment opportunities than other Mechanical Engineers (98% of IMEA graduates are employed three years after the Master's degree, Source Almalaurea 2021, www2.almalaurea.it), thanks to transversal job opportunities in several sectors, such as industrial,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

The points of strength are the diversified educational offer (more than 47 specialized courses on four curricula (three in Italian and one in English) and the offer of pre-degree internships for all students. The internship can be pursued both in companies and in research institutions in Italy and abroad, through national and international exchange programs (ERASMUS Italiano agreements, 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
http://meccanica.dii.unina.it/it/info-lmea

Orientation contact person
Prof. Alfonso William Mauro - wmauro@unina.it

Student's Guide
http://meccanica.dii.unina.it/it/manifesto-lmea

Instagram Channel
meccanica.uninaofficial

neapōlis

neapōlis

UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II
SCUOLA POLITECNICA E DELLE SCIENZE DI BASE

ENGINEERING

MASTER'S DEGREE IN

MECHANICAL ENGINEERING FOR ENERGY AND ENVIRONMENT

IMEA

DIPARTIMENTO DI INGEGNERIA INDUSTRIALE

academic year
2025-2026

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. Four pre-defined training curricula are proposed (**Innovative Energy Systems**, **Advanced Energy Management**, **Propulsion Systems** and **Sustainable Energy**), together with the possibility to individually design its own 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

access requirements

Enrollment in the LM-IMEA requires the possession of a three-year university diploma 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:
http://meccanica.dii.unina.it/it/orientamento-lmea

(*) http://meccanica.dii.unina.it/it/manifesto-lm

TRAINING PLAN

CFU = University Formative Credit

Mandatory Courses for curricula held in Italian	**18 CFU**
○ Heat Transfer	9 CFU, 1st Year
○ Aero-Thermodynamics of Fluid Machinery	9 CFU, 1st Year
Curriculum Innovative Energy Systems *(in Italian)*:	
○ Turbomachinery for Wind Energy	6 CFU, 2nd Year
○ Techniques and Models for Refrigeration	9 CFU, 2nd Year
○ Gas Turbine Based Power Plants	9 CFU, 2nd Year
○ ***1 course (6 CFU) at choice between:***	6 CFU, 2nd Year
▪ Management of Advanced Thermodynamic Systems, Solar Energy Technologies	
○ ***2 courses (18 CFU) at choice among:***	9 CFU, 1st/2nd Year
▪ Applied Acoustic, Heating and cooling systems, Heat Generation Plants, Fluid Machinery Design Principles	
Curriculum Advanced Enengy Management *(in Italian)*:	
○ Fundam. of Energy Efficiency and Renewable Energy Tech.	9 CFU, 1st Year
○ Laboratory of Thermodynamic Systems Optimization	6 CFU, 1st Year
○ Advanced Energy Technologies	6 CFU, 2nd Year
○ Thermo-Fluid-Dynamic Measurements	9 CFU, 2nd Year
○ ***2 courses (18 CFU) at choice among:***	9 CFU, 1st /2nd Year
▪ Measurements and Environmental Impact of Machinery, Heat Generation Plants, Heating and cooling systems, Computational Thermal-Fluid-Dynamic	
Curriculum Propulsion Systems *(in Italian)*:	
○ 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 (6 CFU) at choice between:***	6 CFU, 2nd Year
▪ Calibration and Control of Power Units, Modeling and Optimization of Power Units	
○ ***2 courses (18 CFU) at choice among:***	9 CFU, 1st /2nd Year
▪ Applied Acoustic, Fluid Machinery Design Principles, Measurements and Environmental Impact of Machinery, Computational Thermal-Fluid-Dynamic	
Curriculum Sustainable Energy *(in English)*:	
○ Heat Transfer Principles in Engineering	9 CFU, 1st Year
○ Principles and Applications of Fluid Machinery	9 CFU, 1st Year
○ Advanced Energy Systems and Technologies (modular)	12 CFU, 1st Year
○ Advanced Powertrains for a Sustainable Mobility (modular)	12 CFU, 2nd Year
○ ***2 courses (12 CFU) at choice among:***	6 CFU, 2nd Year
• Fuel Cells for Power Generation and Energy Storage, Gas Turbines for Sustainable Power Production, Low Carbon Boilers and Industrial Furnaces, Hydro, Wind and Ocean Energy Conversion Systems, Fluid Power Systems for Energy Sustainability of Off-Road Vehicles	
○ ***2 courses (12 CFU) at choice among:***	6 CFU, 2nd Year
• Refrigeration and Heat Pump Technologies, Thermo-economic Optimization of Complex Energy Systems, Lighting Technology and Acoustics, Energy and Buildings, Heating, Ventilation and Air Conditioning Systems	
Integrative courses and Self-chosen courses (*)	**30 CFU (15+15)**
Other educational activities, Placement and Master Thesis	**24 CFU (3+9+12)**
Minor in Green Technologies (*) *(extra-curricular CFUs)*	**15 CU**

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.