MSc in Energy Engineering
The Interuniversity Master in Energy Engineering is jointly offered by the University of Trento, Department of Civil, Environmental and Mechanical Engineering and the Free University of Bolzano-Bozen, Faculty of Science and Technology. The courses in the four semesters are offered alternatively in the two institutions.

Students learn to deal with the different issues and opportunities in the field of energy production and efficient energy use. Students learn how to address complex and advanced problems, especially those requiring an interdisciplinary approach in the design, implementation, management and upgrading of production systems, transport and efficient use of energy.

The environmental sustainability of energy consumption and the reduced exploitation of natural resources will be the common basis for the different disciplines involved: electrical engineering, technical physics and building physics, fluid machines, industrial engineering.

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<th>Year</th>
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<td>1</td>
<td>Fall</td>
<td>Trento</td>
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<td>1</td>
<td>Spring</td>
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<td>Spring</td>
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Programme overview

Degree awarded
Master of Science - “Laurea Magistrale” - in Energy 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 50 students
Requirements
- Bachelor’s degree (or equivalent) in Industrial Engineering or Civil and Environmental Engineering or closely related fields (min. GPA: 73% or 22/30 for degrees obtained in Italy)
- Documented background in the following areas: Mathematics, Chemistry, Physics, Thermodynamics and heat transfer, Electrotechnics, Fluid mechanics, Materials Science, Technologies and production systems, Mechanics of structures, Fluid machines
- English at B2 level of the Common European Framework of Reference for Languages (CEFR)
- Italian or German at level A1 (CEFR)

Selection criteria
- Assessment of previous studies and their coherence with the master’s learning objectives
- Academic curriculum
- Language proficiency
- Interview

Application deadlines
Check online for updated information: www.unitn.it/masterenergy

How to apply
- Access the online application form
- Upload the required documents (Bachelor transcript of records, language certifications, any other useful document)
- Submit your application online by the deadline
- Check online for more information and updates: www.unitn.it/masterenergy
Study Plan
1st year

1st semester (in Trento)
- Electrical Systems Engineering
- Fluid Machines Engineering
- Engineering Thermodynamics, Heat and Mass Transfer
- Environmental Fluid Mechanics/ Hydropower Plants

2nd semester (in Bolzano)
- Building HVAC Systems
- Advanced Applications of Building Physics
- Electric Power Conversion Equipment
- One of the two courses: Italiano Tecnico/Technisches Deutsch
2nd year

1st semester (in Bolzano)
Curriculum
TECHNOLOGIES FOR ENERGY EFFICIENCY
• Power production, CHP and district heating systems
• Special Issues of Building Physics
• Applied Mechanics and Technologies for Energy Efficiency

Curriculum
RENEWABLE AND INNOVATIVE TECHNOLOGIES FOR ENERGY SUPPLY
• Power production, CHP and district heating systems
• Hydropower and Wind power systems

One of the two courses:
• Advanced materials for Energy Engineering
• Mechanics and Structural Design for Energy Engineering

2nd semester (in Bolzano)
Curriculum
TECHNOLOGIES FOR ENERGY EFFICIENCY
• District heating system design

Curriculum
RENEWABLE AND INNOVATIVE TECHNOLOGIES FOR ENERGY SUPPLY
One of the two courses:
• Electrochemical energy storage and conversion
• Bioenergy

Elective courses and the master thesis in the 2nd year 2nd semester can be taken either in Bolzano or in Trento
Graduates in Energy Engineering will be **recognized experts** in various aspects of planning, implementing and managing **integrated energy systems**, such as production plants supplied from renewable sources, **low energy consumption buildings** and **transport networks** for electric and thermal energy from the production site to local consumption sites.

**Energy engineers** will work as independent professionals or in public and private companies, industries of the energy and HVAC sectors and public and private utilities. Graduates can move on to **Doctoral Schools**.

The professional profile of the master graduate in Energy Engineering is oriented towards the design and operation of small to medium size **energy production plants**, in particular exploiting **renewable sources**, combined heat and power (CHP) in district heating, and of energy efficient industrial systems and buildings. Energy conversion, energy distribution and energy utilisation systems are the main areas of interest.
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