Master of Science in
ENERGY SCIENCE AND TECHNOLOGY
2-year program - 120 ECTS

Common core courses
- Convex optimization 5 credits
- Electrochemistry for materials technology 3 credits
- Energy conversion and renewable energy 4 credits
- Energy supply, economics and transition 2 credits
- Fundamentals and processes for photovoltaic devices 3 credits
- Heat pump systems 3 credits
- Hydraulic turbomachines 4 credits

Complement
- Students must follow levelling courses depending on their background and choose additional optional core courses to reach 20 ECTS.

Additional mandatory courses for EE/MT:
- Advanced control systems 5 credits
- Advanced energetics 3 credits
- Advanced lab in electrical energy systems 4 credits
- Applied data analysis 8 credits
- Development engineering 4 credits
- Distributed intelligent systems 5 credits
- Electromagnetic compatibility 4 credits
- Energy storage systems 3 credits
- Energy and comfort in buildings 5 credits
- Engines and fuel cells 4 credits
- Environmental transport phenomena 5 credits
- Hydropower schemes and pumped-storage 4 credits
- Industrial automation 4 credits
- Industrial electronics II 4 credits
- Material flow analysis and resource management 4 credits
- Model predictive control 4 credits
- Modelling and optimization of energy systems 4 credits
- Power system restructuring and deregulation 3 credits
- Renewable energy (for ME) 4 credits
- Sanitary engineering for development 3 credits
- Semiconductor devices I 4 credits
- Smart grids technologies 5 credits
- Solar energy conversion 4 credits
- Sustainability assessment of urban systems 3 credits
- Water and wastewater treatment 5 credits

Additional mandatory courses for ME:
- Advanced control systems 3 credits
- Air pollution 5 credits
- Discrete optimization 5 credits
- Energy systems engineering 3 credits
- Fundamentals of electrical circuits and systems I, II 4 credits
- Heat and mass transfer 4 credits
- Heat pump systems 4 credits
- Hydroacoustic for hydropower plants 3 credits
- Hydropower plants: generating and pumping units 2 credits
- Industrial electronics I 4 credits
- Life cycle assessment in energy systems 3 credits
- Lifecycle performance of product systems 3 credits
- Liquid-gas interfacial heat and mass transfer 3 credits
- Machine learning I 4 credits
- Negotiation techniques 2 credits
- Nuclear fusion and plasma physics 4 credits
- Power systems analysis 5 credits
- Principles of finance 5 credits
- Principles of microeconomics 4 credits
- Solid waste engineering 4 credits
- Thermodynamics of energy conversion and storage 3 credits
- Water resources engineering 5 credits

Additional mandatory courses for SIE:
- Advanced control systems 4 credits
- Air pollution 5 credits
- Discrete optimization 5 credits
- Energy systems engineering 3 credits
- Fundamentals of electrical circuits and systems I, II 4 credits
- Heat and mass transfer 4 credits
- Heat pump systems 4 credits
- Hydroacoustic for hydropower plants 3 credits
- Hydropower plants: generating and pumping units 2 credits
- Industrial electronics I 4 credits
- Life cycle assessment in energy systems 3 credits
- Lifecycle performance of product systems 3 credits
- Liquid-gas interfacial heat and mass transfer 3 credits
- Machine learning I 4 credits
- Negotiation techniques 2 credits
- Nuclear fusion and plasma physics 4 credits
- Power systems analysis 5 credits
- Principles of finance 5 credits
- Principles of microeconomics 4 credits
- Solid waste engineering 4 credits
- Thermodynamics of energy conversion and storage 3 credits
- Water resources engineering 5 credits

Optional core courses
- Advanced heat transfer 3 credits
- Air pollution 5 credits
- Discrete optimization 5 credits
- Energy systems engineering 3 credits
- Fundamentals of electrical circuits and systems I, II 4 credits
- Heat and mass transfer 4 credits
- Heat pump systems 4 credits
- Hydroacoustic for hydropower plants 3 credits
- Hydropower plants: generating and pumping units 2 credits
- Industrial electronics I 4 credits
- Life cycle assessment in energy systems 3 credits
- Lifecycle performance of product systems 3 credits
- Liquid-gas interfacial heat and mass transfer 3 credits
- Machine learning I 4 credits
- Negotiation techniques 2 credits
- Nuclear fusion and plasma physics 4 credits
- Power systems analysis 5 credits
- Principles of finance 5 credits
- Principles of microeconomics 4 credits
- Solid waste engineering 4 credits
- Thermodynamics of energy conversion and storage 3 credits
- Water resources engineering 5 credits

Entry requirements
Candidates should have a Bachelor’s degree from a reputable university and excellent academic performance. The strong interdisciplinary character of the Master’s degree in Energy Science and Technology is reflected in the fact that the program is open to a wide range of Bachelor’s degree holders in applied sciences and engineering, including but not limited to electrical, mechanical, environmental sciences and engineering.

Industrial internship
The program includes a compulsory industrial internship with a minimal duration of 8 weeks.