

Electrical Engineering

Powering the World!

New technologies such as electric cars or renewable and ecological power supply systems require fundamental research in electrical (energy) engineering. DC grids (used in batteries, hydrogen systems, or to distribute and transport electrical energy), and power electronics are the latest technologies aiming to provide a green and environmentally-friendly energy supply. Introducing SMART technology into our power supply reduces costs as well as increasing reliability and accessibility for the end-consumer. This program will educate the experts needed to make electrical energy supply sustainable and future-proof. They will be pioneering the future!

Career Profile

This international Master's degree program meets the demand of the electrical engineering industry which offers products, systems and services in the field of electrical energy engineering and whose companies deal with the development, production, operation and maintenance of electrical products and systems. Graduates are able to work on technically complex and interdisciplinary assignments. Possible careers could be for example related to products or systems responsible for high voltage installations for energy distribution or as a project manager for (further) developing electrical energy engineering products.

Study Focus

- Electromagnetic Fields in Multiphysics Systems
- Power Electronics, Electromagnetic Compatibility (EMC)
- Control and Automation Engineering
- Measurement Engineering (Signal Analysis, Machine Learning, Computer-based Measurement Systems and IoT)
- High Voltage Engineering
- Digitalization of Electric Grids
- Energy Markets and Energy Law, Financing
- International Management and Development

International Environment

Electrical Engineering is taught exclusively in English. Being able to not only communicate, but work in English automatically gives our students an advantage in an internationally competitive industry. Additionally, we take pride in our international atmosphere, with staff and students representing over 40 different nationalities.

Degree

- Master of Science in Engineering (MSc)

Duration

- 4 semester (120 ECTS)

Admission Requirements

- Completed Bachelor's degree (180 ECTS or equivalent) in Electrical Engineering
- Interest in intercultural team work
- English skills at least at B2 level (IELTS or TOEFL)

Application

- Online, details & deadlines on fh-ooe.at/application

Language of Instruction

- English

Admission Procedure

- Online application
- Online interviews with pre-selected candidates

Tuition Fees

- EU/EEA citizens: 363.36 EUR per semester (plus Austrian Student Union fee)
- Citizens from non-EU/EEA countries: 726.72 EUR per semester (plus Austrian Student Union fee)



Curriculum

| Course Name | SH / W | ECTS |
|--|-----------|-----------|
| → 1st Semester | | |
| Advanced Calculus | 3 | 4 |
| Statistics | 3 | 4 |
| Energy Automation and Protection Systems | 3 | 4 |
| Energy Automation and Protection Systems (Lab) | 2 | 4 |
| Signal Analysis and Machine Learning | 2 | 4 |
| Computer-based Measurement Systems and IoT | 2 | 4 |
| Cross-Cultural Negotiations | 2 | 2 |
| 2 Elective Courses | 4 | 4 |
| Summe | 21 | 30 |

| Course Name | SH / W | ECTS |
|--|-----------|-----------|
| → 2nd Semester | | |
| Numerical Mathematics | 2 | 3 |
| Electromagnetic Field Theory in Multiphysics Systems | 2 | 4 |
| Electromagnetic Field Theory in Multiphysics Systems (Skills Practice) | 2 | 3 |
| Electromagnetic Field Theory in Multiphysics Systems (Lab) | 1 | 2 |
| Advanced Power Electronics | 2 | 3 |
| Advanced Power Electronics (Lab) | 2 | 2 |
| Advanced Control Engineering | 2 | 3 |
| Advanced Control Engineering (Lab) | 2 | 4 |
| 2 Elective Courses | 6 | 6 |
| Total | 21 | 30 |

| Lehrveranstaltungen | SH / W | ECTS |
|---|-------------|-----------|
| → 3rd Semester | | |
| Energy Markets and Energy Law | 2 | 2 |
| Financing | 1 | 1 |
| Advanced High Voltage Engineering | 3 | 4 |
| Advanced High Voltage Engineering (Lab) | 3 | 5 |
| EMC and EMI Aspects | 2 | 3 |
| EMC and EMI Aspects (Lab) | 1 | 3 |
| Project | 0.5 | 12 |
| Total | 12.5 | 30 |

| Lehrveranstaltungen | SH / W | ECTS |
|---|----------|-----------|
| → 4th Semester | | |
| Intercultural Leadership and Management | 2 | 2 |
| Master's Seminar | 1 | 2 |
| Master's Thesis | 0 | 24 |
| Master's Exam | 0 | 2 |
| Total | 3 | 30 |

| | | |
|-------------------------------|--|------------|
| Total of all semesters | | 120 |
|-------------------------------|--|------------|

SH / W = semester hours per week

Practical Experience and Research

Students spend over 50% of class time in labs and skill practice classes, preparing them for hands-on application of their acquired theoretical knowledge. Additionally a strong cooperation with local industry enables our students to obtain real-world experience during their project work and internship. In Semester 3, students begin to focus on their chosen specialized field in their project work and continue to increase their competency while working on their Master thesis in Semester 4.

Students are also invited to join in R&D activities at the University. Electrical storage systems, PV systems, e-mobility, power electronics, high voltage and high current engineering, switching devices and lightning protection are a few examples of the areas of principle interest. Our modern high voltage and high current lab provides an optimal research environment, equipped with excellent diagnostic tools, including high-speed cameras and plasma spectroscopy.

Good to Know

→ Electric energy engineers have a strong background in Physics with optimal skills to understand complex mechatronic systems such as electric cars, electrical equipment for energy transport and distribution as well as renewable energy systems. Our graduates are in high-demand!



The University of Applied Sciences Upper Austria in Wels has well-equipped labs, experienced professors, professional technicians and effective administration. Graduates like myself also get to work as Energy Engineers due to the program's focus on High Voltage Engineering, Renewable Energy and Energy Storage Systems. The goal is to shape a better and more sustainable future in terms of Energy production and distribution.

Neha Ghanbahadur, BSc
Graduate Student Solar Innovation Center

Contact

Head of Studies

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