

Sustainable Energy Systems

Come Join Us in Pioneering the Future

Sustainability is the key driver of our future development, especially when it comes to energy utilization and consumption. As natural resources are becoming increasingly scarce or more expensive, the sustainable use of energy is becoming more and more important. This degree program combines education in energy systems with regard to sustainable energy resources (solar, wind), hydrogen and battery technology and applications, mobility, energy efficiency, the decarbonization of the traditional energy system as well as the management of international energy-related projects. Special emphasis is placed on learning and working in multicultural teams.

Career Profile

Students specialize individually in the two elective subject groups "Renewable energy systems" and "Hydrogen and Battery systems" in the 2nd and 3rd semester of their studies. Career prospects include the management and technical implementation of energy infrastructure projects, e.g. large-scale PV or wind power plants, energy efficiency measures, smart grids and grid connection of renewable energies as well as energy storage systems. Possible career opportunities include: Engineer for the design, construction, maintenance and retrofit of energy systems, technical consultant, expert for project financing and management, technical adviser for banks and insurance companies.

Study Focus

- Interdisciplinary, technical program with a focus on sustainable energy resources
- Energy storage, energy distribution, energy efficiency, as well as energy markets and management
- Hydrogen and battery technology and application
- Business administration and intercultural management
- International project management and development
- International study groups
- English as the language of tuition

Practical Experience and Research

The goal of the degree program is that students become part of a lifelong network of energy experts. The collaboration with industry partners guarantees the presence of international experts as well as the possibility of international internships. Due to extensive R&D activities on campus, students can get hands-on experience in energy-related research projects.

Degree

- Master of Science in Engineering (MSc)

Duration

- 4 Semester (120 ECTS)

Mode of study

- Full-time, 1 day per week no classes

Admission Requirements

- Completed Bachelor's degree (180 ECTS or equivalent) in Engineering or technical field
- good English language skills

Application

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

Admission Procedure

- Personal interview (e.g. MS Teams)

Language of Tuition

- 100% English

Semester Abroad

- Internship abroad recommended
- more information: international@fh-wels.at

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). Scholarships available.



Curriculum

Course Name	Type	SH / W	ECTS
→ 1st Semester			
Sustainable Development	IC	2	2,5
Basics of Electrical Engineering	LE	3	4
	PR	2	3
	LB	1	1,5
Basics of Thermodynamics and Electrochemistry	LE	3	4
	PR	2	3
	LB	1	1,5
Solar Energy	LE	2	2,5
	PR	1	1,5
Wind Energy	LE	2	2,5
	PR	1	1,5
Intercultural Communication	SE	1	1
Academic Writing	SE	1	1,5
Total		22	30

Course Name	Type	SH / W	ECTS
→ 2nd Semester			
Elective Module 1		8	12
Energy Markets and Policy	IC	2	2,5
Hydro Power	IC	2	2,5
Renewables Laboratory	LB	2	3
Scientific Programming	IC	2	2,5
Applied Statistics	IC	2	2,5
Energy Project Development	IC	2	2,5
International Project Management	IC	2	2,5
Total		22	30

→ Elective Modul 1 "Renewable Energy Systems"			
Interdisciplinary Project	PT	2	3
Large-Scale Solar Power Plants	IC	2	3
Modern Energy Transport and Distribution	LE	2	3
	PR	2	3
Total		8	12

→ Elective Modul 1 "Hydrogen and Battery Systems"			
Interdisciplinary Project	PT	2	3
Battery Technology	LE	2	3
Hydrogen Technology	LE	2	3
	LB	2	3
Total		8	12

Study Abroad

We encourage our students to write their Master's project in the 3rd semester or their Master's thesis in the 4th semester with a university or a company abroad.

Good to Know

→ Solar energy is the largest energy resource in the world, even larger than fossil resources. The use of wind energy has a very low environmental impact. Utilizing energy efficiency potential is the most effective way to save energy, protect the environment and become independent from other countries.

→ Hydrogen, a versatile pioneer that impresses with its emission-free energy that can be used in various applications. Its talent for storing surplus energy makes it a silent protector of sustainable power grids and potential gamechanger for mobility.

→ Batteries, the silent innovators, enable eco-friendly electric mobility and efficient energy storage. They are the key players on the road to clean energy and sustainable transportation.

Course Name	Type	SH / W	ECTS
→ 3rd Semester			
Elective Module 2		10	13
Data Analysis	IC	2	2,5
Financing	IC	2	2,5
Field Trips	SE	3	3
Intercultural Leadership	SE	2	2
Master Project	PT	0,33	7
Total		19,3	30

→ Elective Module 2 "Renewable Energy Systems"			
Large-Scale Wind Power Plants	IC	2	2,5
Energy Meteorology	IC	2	2,5
Operations Research for Energy Systems	IC	2	2,5
	PT	2	3
Grid Integration of Renewable Power Plants	IC	2	2,5
Total		10	13

→ Elective Module 2 "Hydrogen and Battery Systems"			
E-Mobility	LE	2	2,5
	LB	1	1,5
Safety Aspects of Hydrogen and Batteries	IC	3	4
Applications of Hydrogen and Battery Technologies	IC	4	5
Total		10	13

Course Name	Type	SH / W	ECTS
→ 4th Semester			
Master Seminar	SE	1	1
Master Thesis		0	27
Master Exam		0	2
Total		1	30

Total of all semesters (SH/W) **64,3** **120**

*subject to approval by the Agency for Quality Assurance and Accreditation Austria (AQ Austria)

SH/W= Semester hour per week PR=Practical skills
IC = Integrated course LB= Lab
LE= Lecture PT= Project

All non-German native speaking students of the degree program may participate in German language classes



Sustainability is the key to guaranteeing everyone the same quality of life enjoyed in the developed world by revolutionising energy supply. This would, in turn, create new markets, products and innovation and significantly increase the demand for engineers capable of developing such solutions! Sustainable Energy Systems aims to educate such internationally-active experts.

Prof. DI Dr. Wilhelm Süßenbacher, Head of Studies

Contact

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