

# Electrical Engineering

Bachelor's Degree Programme, Full-time

Electrical Engineering: Powering the World!

One of the leading trends today is the shift towards environmentally friendly electrical energy supply. This degree programme is focused on the design, operation and production of devices for modern electrical power supply, electrical energy distribution and transport, as well as power conversion. This covers components for smart grids, renewable energy utilisation, and electric cars. The aim of the Electrical Engineering degree programme is to provide graduates with the skills and know-how required to be able to meet the demands of international electrical energy engineering in future. Our degree programme is highly practical and includes an internship, in addition to the possibility of an exchange semester with one of our worldwide partner universities.

## Career Profile

The future tasks of our graduates cover the development, manufacturing, maintenance, operation and technical support of devices for electrical energy systems, as well as technical consulting. They will also find themselves in the planning and discovery of new and modern energy supply concepts and technologies (such as electrical cars).

## Focus of Studies

- » Fundamentals of electrical engineering and mechanical engineering
- » Electrical apparatuses, machines and drives
- » Electrical systems for energy transport and distribution
- » Modern electrical systems, including smart grid technology
- » High-voltage engineering
- » Power electronics and electrical drives, e.g. for electrical mobility
- » Control engineering
- » Business and accounting
- » Project management, social skills and foreign languages

## Practice and Research

In addition to the practice-orientated education, R&D plays an important role in this degree programme. A number of students are currently involved in R&D projects, either in form of student projects or as research assistants. 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.

## Essential Information

**Degree:**

Bachelor of Science in Engineering (BSc)

**Duration:**

6 Semesters (180 ECTS)

**Annual Intake:**

30

**Admission Requirements:**

A-level/high school diploma or equivalent, interest in natural sciences, interest in intercultural team work, English skills at least at B2 level

**Application:**

all information concerning the application procedure can be found at [www.fh-ooe.at/application](http://www.fh-ooe.at/application)

**Admission Procedure:**

online application, personal/Skype interviews with pre-selected candidates

**Internship:**

at least 10 weeks, in Austria and abroad possible

**Semester Abroad:**

semester and/or internship abroad recommended; more information: [international@fh-wels.at](mailto:international@fh-wels.at)

**Tuition fees:**

EUR 363.36 per semester + ÖH (Austrian Student Union) contribution for students from EU and EEA countries. EUR 726.72 per semester + ÖH (Austrian Student Union) contribution for students from non-member states, scholarships available.

# Curriculum

1 <sup>st</sup> Semester				
Course Name	Course Type	SH/W	ECTS	
Mathematics I	LE	4	5	
Mathematics I	SP	2	2,5	
Electrical Engineering I	LE	2	3	
Electrical Engineering I	SP	2	2	
Electrical Engineering I	LA	1	2	
Production Processes	LE	2	2	
Technical Drawings	LSP	1	2	
Programming Language	LE	2	2	
Programming Language	SP	1	2	
Powerplants for Electrical Power Generation	LE	3	3	
Language I	SP	2	3	
Communication with Intercultural Aspects	SE	2	1,5	
<b>Total</b>		<b>24</b>	<b>30</b>	

2 <sup>nd</sup> Semester				
Course Name	Course Type	SH/W	ECTS	
Mathematics II	LE	4	5	
Mathematics II	SP	2	2,5	
Electrical Engineering II	LE	2	3	
Electrical Engineering II	SP	1	2	
Electrical Engineering II	LA	2	2	
Mechanics	LE	4	4	
Mechanics	SP	2	3	
Fluid Mechanics and Heat Transfer	LE	2	2	
Fluid Mechanics and Heat Transfer	SP	1	2	
Language II	SP	2	3	
Presentation Techniques	SE	2	1,5	
<b>Total</b>		<b>24</b>	<b>30</b>	

3 <sup>rd</sup> Semester				
Course Name	Course Type	SH/W	ECTS	
Electrical Machines I	LE	2	3	
Electrical Machines I	SP	1	2	
Electrical Machines I	LA	1	2	
Electrical Engineering III	LE	3	4	
Electrical Engineering III	SP	2	2	
Electrical Engineering III	LA	1	1	
Materials for Electrical Engineering	LE	3	3	
Measurement Engineering for Electrical Energy Systems	LE	4	5	
Measurement Engineering for Electrical Energy Systems	LA	2	3	
Language III	SP	2	3	
Project Management	LSP	2	2	
<b>Total</b>		<b>23</b>	<b>30</b>	

4 <sup>th</sup> Semester				
Course Name	Course Type	SH/W	ECTS	
Electrical Machines II	LE	2	3	
Electrical Machines II	LA	1	1	
Components of Electrical Systems	LE	4	5	
Components of Electrical Systems	SP	1	1,5	
Components of Electrical Systems	LA	2	2	
Corrosion and Electrocorrosion	LE	1	1	
Corrosion and Electrocorrosion	LA	1	1	
High Voltage Engineering	LE	3	3	
High Voltage Engineering	SP	1	2	
High Voltage Engineering	LA	2	2	
Project I	PW	1	4	
Language IV	SP	2	3	
Intercultural Competence for the Workplace	SE	2	1,5	
<b>Total</b>		<b>23</b>	<b>30</b>	

All non-German native speaking students of the degree programme will participate in German languages classes. German native speaker will learn freely-elected 2<sup>nd</sup> foreign language.

LE = Lecture, SP = Skills Practice, LSP = Lecture with Skills Practice, LA = Laboratory, SE = Seminar, PW = Project Work, TH = Bachelor's Thesis, SH/W = Semester hours per week

5 <sup>th</sup> Semester				
Course Name	Course Type	SH/W	ECTS	
Introduction to Power Electronics	LE	3	3	
Introduction to Power Electronics	LA	2	2	
Electrical Power Grids and Systems	LE	4	5	
Electrical Power Grids and Systems	SP	2	2	
Electrical Power Grids and Systems	LA	2	2	
Control Engineering	LE	3	4	
Control Engineering	LA	2	4	
Patent and Standardisation	LSP	2	2	
Project II	PW	2	4	
Bachelor Seminar I	TH	0,5	2	
<b>Total</b>		<b>22,5</b>	<b>30</b>	

6 <sup>th</sup> Semester				
Course Name	Course Type	SH/W	ECTS	
Business and Economics	LE	2	2	
Business and Economics	SP	2	2	
Statutory Directives for Electrical Engineering	LE	2	2	
Internship	PW	0	18	
Bachelor Seminar II	TH	0,5	4	
Teamwork and Conflict Management	SE	2	2	
<b>Total</b>		<b>8,5</b>	<b>30</b>	

Subsequent Master's Degree Programme at Wels Campus  
» Electrical Engineering Master  (start 2018)

## Study Abroad

It is the aim of the degree programme that students become a part of a lifelong network of experts. International partners located all over the world guarantee that talks are held by international lecturers and experts, the possibility of international internships and exchange semesters.

## Did You Know that ...

... Electrical Energy is THE backbone of a modern society? No other form of energy plays such an important role. With the development of more and more efficient electrical energy supplies, engineers are in high demand. Our graduates are positioned to become members of a network of experts tasked with creating the future of electrical energy supply.

## Contact

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