

Lightweight & Materials Engineering

Building the future

Function, safety, lightweight, design, cost, durability and sustainability – the right choice of material is crucial for all products. Lightweight design and minimizing material usage are essential when moving masses, given climate change and rising energy costs along with managing our limited resources. Understanding the interaction between materials – whether metals, composites, or plastics – their manufacturing processes, and part design is the basis for innovative solutions. This degree enables you to develop high-performance car-, aircraft- or space-structures, sports equipment, durable and perfectly shaped consumer goods up to innovative environmentally friendly food packaging.

Lightweight design and materials engineering make a decisive contribution to achieving climate, resource, and sustainability goals. This degree course offers a wide range of opportunities in a future-oriented industry. It combines innovation, technology, and sustainability.

Career Profile

Graduates are prepared to work in various roles, shaping ideas as product developers, fine-tuning the weight and durability as structural or simulation engineers, and realizing them in an industrial setting by developing and optimizing manufacturing processes including tooling systems – always with the perfect material in mind. Internships, projects, and guest lecturers establish easy contact with our local as well as international industrial and research partners. The international-friendly bachelor's degree program Lightweight & Materials Engineering offers the unique opportunity to acquire not only a cutting-edge engineering degree but also German language skills and opens employment opportunities in Europe and beyond.

Study Focus

- Lightweight design and simulation of lightweight structures
- Material characterization and -selection
- Processing and manufacturing technologies
- Materials: metals, plastics, and composites
- Sustainability, recycling, and bionics
- Industry projects and laboratory practice
- Flexible elective modules
- Two German-taught specializations in the higher semesters:
Lightweight Design & Composite-Materials and
Materials & Process Engineering

Degree

- Bachelor of Science in Engineering (BSc)

Duration

- 2 + 6 semester (180 ECTS)

Admission Requirements

- High school leaving certificate or equivalent
- English language certificate B2 (TOEFL, IELTS)
- CV, Letter of Motivation

Application

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

Language of Instruction:

- This unique program allows international students to start their studies in English while acquiring German language skills to start their professional career in the Austrian job market.
- Semesters 1–4 are taught in English.
- The program is taught in German from semester 5 onwards.

Admission Procedure

- Online application
- MS Teams interviews with pre-selected candidates

Mandatory Internship

- Minimum 10 weeks in Austria or abroad

Semester Abroad

- Semesters abroad and internships are encouraged and actively supported
- international@fh-wels.at

Tuition Fees

- Our university is publicly funded. Only a contribution to our running costs is collected from students: 3,888,- EUR for the first year
- 726,- EUR for every additional semester, reduced by 50% for EU citizens



Curriculum

Preparation (English)

01 Sem	Social Skills	Mathematics Preparation 1	Physics 1 Chemistry 1	English	German
02 Sem	Social Skills	Mathematics Preparation 2	Physics 2 Chemistry 2	English	German

→ A-level/high school diploma or equivalent | German at A2 level | English at B2 level (IELTS or TOEFL)

Qualification (English)

03 Sem	Social Skills	Mathematics 1	Mechanics 1	Lightweight & Materials Engineering 1	German
04 Sem	Economics Social Skills	Mathematics 2	Mechanics 2	Lightweight & Materials Engineering 2	German

→ German at B2 level

Specialization (German)

05 Sem	German Project Management	Specialization <u>German</u>		Specialization <u>German</u>	
06 Sem	Social Skills	Lightweight Design & Composite-Materials Lightweight Engineering & Structural Design Composite Materials, Metals, Plastics Finite Element Simulation, CAD Processing Technology, Additive Manufacturing Material & Structural Testing, Joining Technology Bionics, Sustainability, Recycling ...		Materials & Process Engineering Metals: Material & Processing Technology Plastics: Material & Processing Technology Additive Manufacturing Material Analysis & Testing, Simulation Tool Engineering, Surface Technology Recycling, Sustainability ...	
07 Sem	German Social Skills				
08 Sem	Social Skills	Professional Internship		Bachelor Thesis	Electives

→ Bachelor of Science in Engineering (BSc)

Enter the German-speaking job market

We get you covered! The degree program is taught in English during the first four semesters and switches to German from the 5th semester onwards. German language courses are an integral part of the curriculum to prepare you for the specializations and the professional internship in German.



This degree program offers you a broad technical education in and beyond the fields of lightweight design, materials and material processing. It provides an excellent entry into professional life through a strong focus on practical projects. You acquire a versatile toolbox of methods and build up a broad knowledge base.

DI Sebastian Hamedinger BSc, graduate

Contact

Head of Studies

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