

M. Eng. in Sustainable Energy

3 Specializations: Transition, Development, Engineering

Europa-University Flensburg (EUF) & Flensburg University of Applied Sciences (FUAS) | Germany

KEY SUMMARY

- Master of Engineering in Sustainable Energy
- 3 semester, full-time, 90 ECTS / Credit Points
- Application deadline: 15. July or 15. January
- Program start: September or March for specializations Transition and Engineering (September for Development)
- Good and close supervision, with around 20 students per year for each specialization
- Mix of German and international students, but no prior German language knowledge necessary
- Semester fees of ~350€ per semester
- Cooperation of 2 universities EUF, FUAS and the Center for Sustainable Energy Systems (ZNES)
- Interdisciplinary and applied curriculum including insights from practitioners and researchers

PROGRAM OVERVIEW

How can we shape a sustainable energy system? How can we design and implement sustainable technologies to prevent and solve environmental problems? How can different type of actors govern the transition and what policies and measures can we employ to drive positive change?

If you are interested in questions like these, the Master's program in Sustainable Energy (SE) is for you. You will learn how to evaluate, design, and implement technical, economic, and social responses to complex environmental challenges.

Program structure

The SE program consists of a total of 90 ECTS / Credit Points (CP). The main teaching language is English with some elective courses only offered in German. Students enroll in one of the three specializations:

- Sustainable Energy **Transition**
- Sustainable Energy **Development**
- Sustainable Energy **Engineering**

Sustainable Energy Transition: This specialization tackles the complex challenges of transitioning to sustainable energy systems. You'll analyze technical, economic, political, and social factors to design effective solutions. Our holistic approach considers both national and international perspectives.

Sustainable Energy Development: Combines engineering and management to provide the knowledge and skills base for sustainable energy professionals in international development cooperation. Universal access to energy, equitable solutions, and project management are key fields for this program, primarily addressing students from the Global South.

Sustainable Energy Engineering: This specialization deals with the engineering aspects of energy technologies, including but not limited to renewables, energy storage or grid solutions. You'll explore how these technologies work within larger sustainable energy systems – to help solving the climate crisis with engineering solutions.

Special feature of the program

The SE program is a cooperation between the Europa-University Flensburg (EUF) and the Flensburg University of Applied Sciences (FUAS). It fosters a vibrant learning environment through its diverse faculty and *student body*, which is comprised of students from various academic and cultural backgrounds. Around 50% of all students come from the Global South, further contributing to the program's rich diversity. Graduates gain valuable personal and social skills beyond academics thanks to the program's small class sizes (<30), interactive learning, and focus on peer-to-peer exchange.

The Program enhances your learning experience by offering the opportunity to participate in joint courses with students from other programs (including M.A. International Management, M.A. Transformation Studies and M.Eng. Wind Energy Engineering). Building on prior knowledge, the program actively encourages collaboration with industry professionals and academic researchers through site visits, projects, and a *strong alumni network*, ensuring graduates are equipped with both theoretical and practical up-to-date expertise.

CAREER PROSPECTS

The SE Program qualifies graduates for key positions in the energy industry, governments, NGOs, and international organizations or for a continuation of their academic career in independent scientific work in the field of sustainable energy systems. Through strong industry connections and partnerships, many students find part-time jobs related to their interests while still pursuing their studies. These valuable experiences enhance their practical skills and knowledge and provide opportunities to build professional networks.





PROGRAM MODULES/COURSES

The curriculum consists of common compulsory courses for all three specializations as well as additional specialization-specific compulsory and elective modules. A full-time study consists of 3 semesters of each 30 Credit Points (CP). Taking less credits per semester (e.g. due to other obligations such as part time work or care duties) is possible but will result in a consequently longer duration of the entire study program. The wide range of elective modules allow you to individually select and adapt courses to your specific career path. This allows you to participate in courses from all specializations.

Compulsory modules (for all specializations)

- **Analysis and Complexity of Energy Systems (15 CP):** Gain the knowledge and skills to model, optimize, and analyze sustainable renewable-based energy systems.
- **Sustainable and Just Energy System Solutions (15 CP):** Develop an understanding of climate justice, sufficiency and acceptance in the context of sustainable energy systems, as well as the limitations and opportunities of energy and climate policy.

Specialization-specific modules

Transition:

- Transformation Studies (5 CP)
- Ecological Economics (5 CP)
- Energiewende Showcases (5 CP)
- Resource Transition & Sustainability (5 CP)

Development:

- Sustainable Energy Access Planning (5 CP)
- Organisations and Diversity in Development Cooperation (5 CP)
- International Community Energy Project (5 CP)
- Markets and Project Management (5 CP)

Engineering:

- Energy Storage (5 CP)
- Sustainability in Engineering (5 CP)

Elective modules

You can choose from a variety (at least four each semester) of technical electives in the field of electrical, mechanical or plant engineering and specialization specific modules to tailor your studies to your interests and career goals.

Examples for (T1-T8):

- Electrochemical Energy Technology (5 CP)
- Advanced Thermal Energy System Simulation (5 CP)
- Hybrid Power Systems and Energy Management (5 CP)
- Controller Design for Wind turbines and Wind Farms (5 CP)
- ...and many more updated each semester!

Master Thesis

The Master Thesis involves a five-month independent research project (8,000 words), concluding with a defense where students present and apply their findings to real-world challenges.

Transition	1. Sem. (Spring)	ACES: Analysis and Complexity of Energy Systems (15 CP)	TS: Transformation Studies (5 CP)	EWS: Energiewende Showcases (5 CP)	Elective / Wahlpflicht (Choose 1 out of 4)			
					TE 1 (5 CP)	TE 2 (5 CP)	TE 3 (5 CP)	TE 4 (5 CP)
	2. Sem. (Autumn)	SEnSe: Sustainable and Just Energy System Solutions (15 CP)	EE: Ecological Economics (5 CP)	RTS: Resource Transition & Sustainability (5 CP)	Elective / Wahlpflicht (Choose 1 out of 4)			
					TE 5 (5 CP)	TE 6 (5 CP)	TE 7 (5 CP)	TE 8 (5 CP)
	3. Sem.	TH: Master Thesis (30 CP)						
Development	1. Sem. (Spring)	ACES: Analysis and Complexity of Energy Systems (15 CP)	SEAP: Sustainable Energy Access Planning (5 CP)	ODDC: Organisations and Diversity in Development Cooperation (5 CP)	Elective / Wahlpflicht (Choose 1 out of 4)			
					TE 1 (5 CP)	TE 2 (5 CP)	TE 3 (5 CP)	TE 4 (5 CP)
	2. Sem. (Autumn)	SEnSe: Sustainable and Just Energy System Solutions (15 CP)	ICEP: International Community Energy Project (5 CP)	MPM: Markets and Project Management (5 CP)	Elective / Wahlpflicht (Choose 1 out of 4)			
					TE 5 (5 CP)	TE 6 (5 CP)	TE 7 (5 CP)	TE 8 (5 CP)
	3. Sem.	TH: Master Thesis (30 CP)						
Engineering	1. Sem. (Spring)	ACES: Analysis and Complexity of Energy Systems (15 CP)	ES: Energy Storage (5 CP)	Elective / Wahlpflicht (Choose 2 out of 4)				
				TE 1 (5 CP)	TE 2 (5 CP)	TE 3 (5 CP)	TE 4 (5 CP)	
	2. Sem. (Autumn)	SEnSe: Sustainable and Just Energy System Solutions (15 CP)	SE: Sustainability in Engineering (5 CP)	Elective / Wahlpflicht (Choose 2 out of 4)				
				TE 5 (5 CP)	TE 6 (5 CP)	TE 7 (5 CP)	TE 8 (5 CP)	
	3. Sem.	TH: Master Thesis (30 CP)						



ENTRY REQUIREMENTS AND HOW TO APPLY – for specializations Transition & Engineering

The SE Program offers admissions for specializations Transition und Engineering in fall semesters (start mid-September) and spring semesters (start mid-March).

Application Period

- Fall semester: **15. May - 15. July** (deadline)
- Spring semester: **01. December - 15. January** (deadline)

Entry Requirements

To be eligible for admission, applicants must fulfill the following criteria:

- **A bachelor's degree** of 210 ECTS (or the equivalent foreign degree from an internationally recognized university) engineering, industrial engineering or sustainability science with a focus on energy topics. Applicants with a degree of at least 180 ECTS may be offered conditional admission (see below).
- **Proof of English level B2** proven by performance in the context of the general higher education entrance qualification or by recognized international tests.
- **International awareness through a semester abroad** (for specialization Transition only): Proof of a stay abroad (study-related semester, internship or similar) of at least 4 months before completing the SE program. This can be also completed during the master program. Applicants having performed their studies outside Germany automatically meet this criterion.

Conditional admission possible

We encourage applications from students who might not yet meet all the criteria above. If your application lacks specific coursework, you may be offered conditional admission, to meet these requirements within your master program. This means you will be admitted to the program on the condition that you complete additional bridging courses to fill any knowledge gaps. These bridging courses typically comprise of up to 30 ECTS of economic and/or engineering courses and can be taken before or alongside the regular program coursework.

Selection criteria/additional info

The final selection is based on previous academic performance and application documents.

Tuition Fees

Semester fees of around 350€ per semester. You find information on semester fees on the [University website](http://www.uni-flensburg.de).

How to apply (Transition & Engineering)

1. **Apply online:** Go to the [application portal of the EUF](http://www.uni-flensburg.de) and follow the instructions for the online application.
2. **Submit your supporting documents:** Check what documents you need to submit (i.e., official transcripts, degree diploma/ proof of expected graduation, translations, proof of English)
3. **Pay the application and semester fee** (when applicable).

ENTRY REQUIREMENTS AND HOW TO APPLY – for specialization Development

The specialization Development starts only in the fall semester, with application starting more than 1 year in advance. The Development specialization has a decentral and different application process. Please see <https://www.uni-flensburg.de/eem/admission/>

STUDENT LIFE

The student body and alumni association (Förderverein der Energiewissenschaften EUM/EnWi e.V.) provide various activities beyond your studies, including networking events, industry insights, workshops, and excursions in the field of energy and environmental sciences:

- Sailing trip through the Danish South Sea combining workshops, site visits, and lectures on the energy transition (voluntary basis).
- Sustainable Energy Alumni Conference every year with more than 100 participants (EUM-Fachtagung)
- Mentoring program to match graduates with our wide network of 500+ Alumni to kick-start career options.
- Livable and affordable life in an open-minded student town (around 90,000 inhabitants) directly located at the waterfront and near beaches.

ABOUT THE ZNES

The Center for Sustainable Energy Systems (ZNES) combines the knowledge of the EUF and FUAS in the field of sustainable energy research (www.znes-flensburg.de). The focus of our teaching and research work is on the sustainable energy transition in Germany, Europe and globally. We develop energy system models and design measures for the implementation of sustainable energy systems. Political economy studies help us to identify barriers to transformation and develop suitable local solutions. In addition to the technical and economic aspects, we also consider socially just and environmentally compatible perspectives. The possibilities of energy sufficiency and sustainability as well as the investigation of justice and gender aspects also play a central role in our research and teaching methods.

CONTACT

Programme Webpage:
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The SE programme is coordinated by a team of experienced professors specialised within their respective fields:

Specialisation Transition: Prof. Dr. Pao-Yu Oei (EUF)
Specialisation Development: Prof. Dr. Bernd Möller (EUF)
Specialisation Engineering: Prof. Dr. Ilja Tuschy (FUAS)

