

3	Master Seminar Scientific Work	Compulsory Elective II	Compulsory Elective I
		Sustainability (lecture series)	Simulation of Building Energy Concepts
2	Master Thesis	Building Information Modeling (BIM)	Sustainable HVAC
		Smart Building Controls	Electrical Engineering for Energy Applications
		Virtual Power Plants	Energy System Technology
		Photovoltaics Engineering	Building Physics
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Campus Feuchtwangen

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Dates

Registration: 1 May - 15 September
 Start of studies: 1 October

Type of study	Full-time
Standard period of study	3 semesters
Language of instruction	English
Lecture Location	Feuchtwangen
Degree	Master of Engineering (M.Eng.)
Start of study	Winter semester



Beyond smart

Aim of the study programme

Sustainability in buildings is not just a trend; it is the only way forward. The global commitment to provide sustainable and affordable built environments will involve a transition to carbon-neutral solutions for both new and existing buildings. This task is not only a challenge, but also requires many motivated people with expertise in the field of energy efficiency of buildings.

With our advanced **Master's degree in Sustainable Building Systems**, you can not only help shape this change but also drive it forward with your expertise. Did you know that buildings today account for a significant proportion of primary energy consumption and electricity consumption worldwide? Against the backdrop of global warming and the limited availability of energy resources, our master's course offers you the opportunity to use your skills to solve global problems with future technologies.



Competences

In the first semester, the „Electrical Engineering for Energy Applications“ module teaches basic technical knowledge about the components and participants in the system. „Simulation of Building Energy Concepts“ is one of the five digital modules in the first semester, which deals with the interaction of the individual participants in the energy system.

In „Building Physics and Energy System Technologies“, students learn about physical phenomena in buildings, including the behavior of heat, air, and humidity and their effects on energy efficiency, indoor air quality, and comfort. In „Photovoltaics Engineering“, students learn the basics of solar technology and deal with the design, development, and implementation of technologies that convert sunlight into electricity using semiconductor materials. In an elective module in the first and second semesters, students can delve deeper into other exciting topics.

In the second semester, the „Virtual Power Plant“ deals with another essential building block for the building energy systems of the future, namely the combination of decentralized energy generators with systems for storing or otherwise using surplus energy in so-called power-to-X systems for a secure supply. „Sustainable heating, ventilation, and air conditioning (HVAC)“ covers the planning, installation, and operation of HVAC systems that reduce energy consumption, minimize environmental impact, and improve indoor air quality and comfort.



„Smart Building Controls“ refers to the use of automated systems and technologies to optimize the performance of building systems, including HVAC, lighting and security, to improve energy efficiency, occupant comfort and operational efficiency. Building Information Modeling (BIM) teaches students how to digitally represent the physical and functional characteristics of a building, facilitating collaboration and information sharing between project stakeholders.

With „Basics Sustainability“, students learn about the most important sustainability models and analysis methods for sustainable development. Basic methods for a fair distribution of environmental goods as well as environmental policy instruments and tools for sustainable spatial planning are presented from the field of environmental and resource economics. The third semester allows students to delve deeper into selected topics as part of the „Master's Thesis“, which is planned in cooperation with various companies.

The „Master's seminar on scientific work“ accompanies the Master's thesis, opens the exchange between students in the form of lectures, and provides the tools for a solid scientific thesis. You complete the Master's course in three semesters. Upon successful completion, you will be awarded the internationally recognized academic degree of Master of Engineering (M.Eng.).

