



LUND
UNIVERSITY

MSc in Energy-Efficient and Environmental Building Design

LUND UNIVERSITY, SWEDEN

- Master of Science in Energy-Efficient and Environmental Buildings
- 2 years, full-time, 120 ECTS credits
- Faculty of Engineering
- Campus Helsingborg
- Application deadline: January 2021
- Programme start: August 2021

Programme overview

Buildings are responsible for a large share of our global energy use. Energy use is in fact the main determinant of a building's global environmental footprint, considering its total life span.

Lund University is internationally renowned for high-quality research related to energy-efficient buildings. Our expertise is centred on a whole-building perspective, which accounts for inhabitant needs as well as their comfort and health. The University's advanced research, and its close ties to the building industry, create an excellent foundation for a strong Master's programme with a largely unique focus on buildings.

Our students will graduate with advanced knowledge, skills and competencies within the area of energy-efficient and environmental building design in heating-dominated climates. Our goal is to create highly skilled professionals, who will significantly contribute to and influence the design, building or renovation of energy-efficient buildings and relating to renewable energy supply, taking into consideration the architecture and environment, the inhabitants' behaviour, needs, health and comfort, as well as the overall economy.

The carefully tailored theoretical courses are complemented with practical modules, in which students apply their new knowledge. This pedagogical approach enables a strong learning progression and is the reason why the programme is shaped by tailor-made mandatory courses. Our students work together in small teams to design energy-efficient concepts and buildings and to analyse the consequences of various design alternatives using supportive computer tools and methods in an integrated design process. The student teams are intentionally mixed both in terms of cultural background and academic background, such as in architecture and engineering. Thus, the students are trained in the interdisciplinary design process and in team work, which is

very important for their future careers. Courses also include site visits, guest lecturers from the industry and tours of existing good examples of energy-efficient building design.

The programme involves teachers from different departments at Lund University, mainly: Department of Architecture and Built Environment (Divisions of Energy and Building Design and Environmental Psychology) and Department of Building and Environmental Technology (Divisions of Building Physics and Building Services).

Programme modules/courses

COURSES AND NUMBER OF CREDITS: **Semester 1:** Energy Use and Thermal Comfort in Buildings (7.5), Moisture Safety Design (7.5), Passive House – Integrating Thermal and Moisture Issues (15). **Semester 2:** Ventilation and Indoor Air Quality (7.5), Daylighting and Lighting of Buildings (7.5), Energy-Efficient Office Building – Integrating Daylight and Ventilation (15). **Semester 3:** Building Integrated Solar Energy Systems (7.5), Life-Cycle Perspective and Environmental Impact of Buildings (7.5), Public Building – Integrating Solar Energy, Costs and Environmental Issues (15). **Semester 4:** Degree project in Energy-Efficient and Environmental Buildings (30).

Career prospects

The rising global awareness of environmental concerns, coupled with increasingly demanding building regulations, means there is a high demand for professionals that are skilled within energy-efficient building design.

With a specialisation in building considerations for heating-dominated climates, graduates become attractive candidates on e.g. the European, Russian, Chinese and North American job markets. The methodologies and knowledge gained can to a large extent also be of use for building design in temperate climates.

The local Swedish market has seen a significant surge in the demand for energy-efficient buildings in the last ten years, and we are among the leading countries in the world in practising these principles.

The programme leads to a Master of Science degree in Energy-efficient and Environmental Buildings. As a graduate, you will be able to work in design teams responsible for planning and designing energy-efficient and environmental buildings, including renovation of the existing building stock. You will be able to take a leading role in companies (e.g. building consultancies, architect



“The programme gives a well-balanced architectural and engineering understanding of subjects around design of environmental buildings. The courses focus on energy efficiency and environmental aspects. Looking back, some subjects were more demanding than others, but they were crucial to grasp what energy efficiency in building construction is.”

Aija Baumane from Latvia





firms, construction companies) and municipalities pursuing energy and environmental aspects, with a whole-building perspective in mind. Students have linked their degree project to research projects at the university, and others performed their degree projects at a variety of architecture and engineering companies. Some have gone on to work for e.g. White Arkitekter (Sweden), Bengt Dahlgren (Sweden), Sweco (Sweden), Skanska (Sweden), Link Arkitektur (Norway), Arup (Germany), and WSP (UK), and Rambøll A/S (Denmark). Other graduates have moved on to PhD positions at e.g. Queensland University of Technology in Australia, ETH Zürich, Lund University and Luleå University of Technology.

Entry requirements and how to apply

ENTRY REQUIREMENTS

A Bachelor's degree in architecture, civil engineering, architectural engineering or equivalent. Completed courses within the three subjects: building technology/structural engineering, building physics/science and building services. A minimum of 3 credits/ECTS is required for each of these three subjects. In addition, a total of 30 credits/ECTS is required as the sum of any combination of courses within energy and building technology/structural engineering, building physics/science, building services, building materials and architecture. English Level 6 (equivalent to IELTS 6.5, TOEFL 90). See www.lunduniversity.lu.se for details on English proficiency levels.

HOW TO APPLY

1. Apply online: Go to www.lunduniversity.lu.se/eebd Click on "Apply" and follow the instructions for the online application at the Swedish national application website www.universityadmissions.se.

Rank the chosen programmes in order of preference.

2. Submit your supporting documents:

- **General supporting documents:** Check what documents you need to submit (i.e. official transcripts, degree diploma/proof of expected graduation, translations, proof of English, passport) and *how* you need to submit them at www.universityadmissions.se
 - **Programme-specific supporting documents:** For information on programme-specific documentation, please check the programme webpage.
- 3. Pay the application fee** (when applicable).

SELECTION CRITERIA

The selection is based on academic qualifications.

CONTACT

Programme webpage

www.lunduniversity.lu.se/eebd

Programme Director

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TUITION FEES

There are no tuition fees for EU/EEA citizens. For non-EU/EEA citizens the tuition fee for this programme is SEK 145 000 per year. See www.lunduniversity.lu.se for details on tuition fees.

About the Faculty of Engineering

The Faculty of Engineering, LTH, is as a place for dreams and discoveries. We inspire creative development of technology, architecture and design and teach some of Sweden's most attractive Master's programmes, all built on a broad research base. LTH is among the leading engineering faculties in Europe with close to 10 000 undergraduate students. Over 1 000 researchers at LTH work hard to improve the quality of life for people and promote a more careful use of the Earth's resources. Our vision is: Together we explore and create – for the benefit of the world. A world record in 5G technology, solar cell-driven water purification, early cancer diagnosis, nanotechnology for more efficient solar panels, and a health-promoting oat drink are some of the innovations developed at LTH.

About Lund University

Lund University was founded in 1666 and is repeatedly ranked among the world's top 100 universities. The University has 40 000 students and more than 8 000 staff based in Lund, Helsingborg and Malmö. We are united in our efforts to understand, explain and improve our world and the human condition.

The University offers one of the broadest ranges of degree programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. Because of its wide disciplinary range, interdisciplinary collaborations and engagement with wider society, Lund University is particularly well equipped to meet complex societal challenges. With partner universities in around 70 countries, the University's profile is distinctly international.

Learn more at www.lunduniversity.lu.se

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