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
- Lund Campus
- Application deadline: January 2024
- Programme start: August 2024

PROGRAMME OVERVIEW

Buildings are responsible for a large share of our global energy use. Energy use is in fact a significant 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, creates 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 educate highly skilled professionals, who will significantly contribute to and influence the design, building or renovation of energy-efficient buildings and with building-integrated renewable energy supply, taking into consideration the architecture and environment, the inhabitants' behaviour, needs, health and comfort.

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 only consists of 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 divisions at Lund University; Divisions of Energy and Building Design, Building Physics, and Building Services at the Department of Building and Environmental Technology.

PROGRAMME MODULES/COURSES

In each of the first three semesters of the programme, you will take two theory-based courses followed by an applied course, in which you will apply theory to a specific building project. The fourth semester will be spent carrying out your degree project.

COURSES AND NUMBER OF CREDITS:

Semester 1: Energy Use and Thermal Comfort in Buildings (7.5), Moisture Safety Design of Buildings (7.5), Residential Building – Integrating Thermal and Moisture Aspects (15).

Semester 2: Ventilation and Indoor Air Quality in Buildings (7.5), Daylighting and Lighting of Buildings (7.5), 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

"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 where more demanding than others, but they were crucial to grasp what energy efficiency in building construction is."

Aija Baumane – student from Latvia

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 decades, and Sweden is amongst 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 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), 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

A Bachelor's degree in architecture, civil engineering, architectural engineering or equivalent. Completed courses within the following 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.

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 www.universityadmissions.se, the Swedish national application website. 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)**

Tuition fees

Tuition fee SEK 170 000 per year for non-EU/EEA citizens. No fee for EU/EEA citizens.

Selection criteria/additional information

The selection is based on academic qualifications.

ABOUT THE FACULTY OF ENGINEERING

The Faculty of Engineering, LTH, is 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 nearly 10 000 students. Over 1 000 researchers at LTH work hard to improve the quality of life for people and promote more careful use of the Earth's resources. 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. Together we explore and create – for the benefit of the world.

CONTACT

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Lund University was founded in 1666 and is repeatedly ranked among the world's top universities. The University has around 45 000 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.

Learn more at www.lunduniversity.lu.se

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