

Appendix 2

To the Programme Regulations 2014 of the
Master's degree programme in Integrated Building Systems

Qualification profile

Introduction

The Master's degree programme in Integrated Building Systems imparts scientific training in building systems and technologies, with a focus on energy efficiency and the environmental impact of buildings. It addresses the integration of sustainable energy technologies at the building and community level with the complex requirements for building operation which these generate. The programme is interdisciplinary, integrating methods and knowledge from architecture, civil engineering, mechanical engineering and electrical engineering. Its graduates are specialists in the area of integrated building systems and technologies. They have access to a wide range of professional fields, which include building services, energy supply, planning, consulting, real estate and facility management in companies, public authorities such as urban administration, and research institutions. Their training enables them to assume positions of significant responsibility.

Domain-specific knowledge and understanding

Graduates with a Master's degree in Integrated Building Systems

- have a foundation in architecture, mechanical engineering, civil engineering and electrical engineering and a basic understanding of physics, thermodynamics, fluid dynamics, applied mathematics, building technologies and structural engineering;
- are able to integrate state-of-the-art knowledge of building systems and technologies into the planning of complex buildings with an eye to comfort, security, and economic and ecological aspects;
- possess broad knowledge in the areas of building systems design, energy flow in and around buildings, energy technology for buildings, building operation, control and feedback control systems, building services and energy management systems.

Skills

Graduates with a Master's degree in Integrated Building Systems

- are able to define assumptions, formulate arguments, work with abstract concepts and data, and identify and understand the interaction of relevant components in order to make evaluations and develop appropriate approaches to the planning and operation of complex buildings;

- are able to apply advanced techniques of analysis, computation, diagnosis and modelling including static and dynamic building energy simulation and the modelling of building systems, and have mastered the associated programming techniques;
- are able to define a work programme, analyse a problem or task related to building operation and management, and develop technical solutions;
- are able to understand buildings as integrated systems by considering all of the relevant interactions with the environment of the area and city, and develop scenarios for the future.

Personal and social competences

Graduates with a Master's degree in Integrated Building Systems

- are able to work in interdisciplinary teams and coordinate the cooperation between various building technology disciplines;
- are able to report on findings and working methods orally and in writing using current specialist language and terminology, and present the advantages of new ideas and developments convincingly;
- are able to present ideas, problems and approaches to specialists and laypersons orally and in writing and tailor their communication to the respective audience.