

Architectural Technology and Construction Management 4th Semester (15 ECTS)

High-Rise Construction of more than 3 Floors

PURPOSE AND LEARNING OBJECTIVES

National subject element High-rise Residential Construction of more than 3 Floors consists of a cross-disciplinary project based on a specific residential construction of more than 3 floors. The subject element makes up 15 ECTS and includes the following subject areas:

- **Communication and Cooperation (5 ECTS)**
- **Production (5 ECTS)**
- **Project Planning (5 ECTS)**

Knowledge

The student will gain knowledge about:

1. complex constructions and building-technical principles, including statics and technical installations, and reflection on these principles
2. common communication methods, tools, and standards in connection with digital project planning and an ability to reflect on digital systems and methods applied by the profession
3. complex production and completion methods and the ability to reflect on these methods
4. scientific theoretical principles and methods relevant to the practice of the profession
5. relevant social, environmental, financial, and technological aspects in the project planning and production process.

Skills

The student will get the skills to:

1. apply and master methods and tools to collect, analyse, and process information
2. apply methods for planning, coordination, and project design of a digital cross-disciplinary process, including considerations about completion, operation, and maintenance
3. master the skills associated with the planning and management of the completion
4. apply digital building information models (BIMs), transfer and extract data between different digital platforms and information systems
5. communicate digital project and documentation materials as a basis for digital construction management
6. communicate and assess practice-orientated and professional issues, account for and choose solutions for business partners and users.

Competences

The student will learn to:

1. manage documented analysis of complex and relevant building-technical issues
2. manage complex digital project planning and production in consideration of social, environmental, and financial aspects
3. manage the project planning and completion process in consideration of societal and technological conditions
4. independently participate in a cross-disciplinary cooperation on planning, project design, and implementation of construction projects
5. identify their own learning requirements and develop their own knowledge, skills, and competencies.

Architectural Technology and Construction Management

4th Semester (15 ECTS)

The Climate Screen

PURPOSE AND LEARNING OBJECTIVES

The local subject element in the 4th semester focuses on larger buildings over 1000 m². The emphasis is on analyzing, designing, and executing office buildings or larger public buildings designed for many people. Buildings with features such as suspended glass facades, flat roofs, and large open office landscapes present many building physics and construction challenges. The subject element is placed in the 4th semester immediately following the compulsory course, concluding with an exam shared with the compulsory course and with an overall assessment.

The subject element comprises 15 ECTS and includes the following subject areas:

- **Production (5 ECTS)**
- **Design (10 ECTS)**

Knowledge

In relation to the local subject element, the student should:

1. Be able to understand and reflect on the complexity of designing the climate screen including function, structure, building physics, production, operation, and demolition.
2. Understand the complexity of structural design of the building system, including understanding of static principles and connections in the climate screen, including facade and balcony suspension.
3. Understand and reflect on challenges related to indoor climate, such as sound, light, overheating, and ventilation.
4. Have basic knowledge and understanding of geotechnics and soil investigations.
5. Knowledge of relevant social, environmental, economic, and technological aspects in the design and production process, including optimization of material consumption and design for disassembly.
6. Understand and reflect on planning and operation of the construction site during design and execution.

Skills

In relation to the local subject element, the student should be able to:

1. Document climate adaptation regarding wind, water, and temperature, e.g., explain access conditions, LUR and/or LAR.
2. Document and illustrate building physics and construction solutions as well as details of the climate screen.
3. Argue for and document indoor climate solutions, e.g., using light and energy calculations.
4. Document and explain solutions related to operation and recycling based on determination of the building's climate load and choice of optimal materials, structures, and installations.

5. Document risk management specific to the climate screen, including design and occupational safety.
6. Document location-based principles for execution schedule.
7. Facilitate digital information flow in the construction phases and between construction actors.

Competencies

The student should have the competence to:

1. Prepare relevant sections in construction documentation, as well as selected drawing material in the fire strategy report.
2. Handle and design complex facade constructions, including building technical issues related to facade closure.
3. Handle digital building information models and transfer and extract data between different digital platforms and information systems.
4. Calculate and assess the building's energy balance and energy framework.
5. Prepare construction site plans and undertake contracting.