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Faculty of Health, Science and Technology

Programme Syllabus

Study Programme in Building and Construction Engineering

Programme Code:	TGHBY
Programme Title:	Study Programme in Building and Construction Engineering Högskoleingenjörsprogrammet i byggteknik, inriktning husbyggnad
Credits:	180 ECTS credits
Programme Approval:	The programme syllabus was approved by the Faculty Board of Health, Science and Technology on 18 March 2021 and applies as of the autumn semester of 2020, Rev. 1 Dec. 2022.
Language of Instruction:	Swedish
Education Cycle:	First cycle
Degree Type:	Professional
Degree Level:	Bachelor of Science in Building Engineering Högskoleingenjörsexamen – Byggteknik inriktning husbyggnad.
Entry Requirements:	General entry requirements and Physics 2, Chemistry 1 Mathematics 3c/Mathematics D

General Information
Construction is a multifaceted industry offering many opportunities for the construction engineer to perform diverse tasks and play many roles. This programme aims at equipping future construction engineers for work in many fields within the broad construction industry

area. The study programme has a focus on building and the areas of environment, production management, and design.

Programme Outcomes

The Higher Education Ordinance, System of Qualifications, specifies the outcomes required for certain degrees. The outcomes for a Degree of Bachelor of Science in Engineering are as follows:

For a Degree of Bachelor of Science in Engineering the student shall demonstrate the knowledge and skills required to work autonomously as a graduate engineer.

Knowledge and understanding

For a Degree of Bachelor of Science in Engineering the student shall

- demonstrate knowledge of the disciplinary foundation of the engineering field chosen and proven experience in this field as well as awareness of current research and development work, and

- demonstrate broad knowledge in the engineering field chosen and relevant knowledge of mathematics and the natural sciences.

Competence and skills

For a Degree of Bachelor of Science in Engineering the student shall

- demonstrate the ability to identify, formulate and deal with issues autonomously and creatively using a holistic approach and to analyse and evaluate technological solutions

- demonstrate the ability to plan and using appropriate methods undertake tasks within predetermined parameters

- demonstrate the ability to use knowledge critically and systematically to model, simulate, predict and evaluate series of events on the basis of relevant information - demonstrate the ability to design and manage products, processes and systems while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community

- demonstrate the capacity for teamwork and collaboration with various constellations, and

- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences.

Judgement and approach

For a Degree of Bachelor of Science in Engineering the student shall

- demonstrate the ability to make assessments informed by relevant disciplinary, social and ethical aspects

- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of the individual for how it is used, including social and economic aspects as well as environmental and occupational health and safety aspects, and

- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

In addition to the Higher Education Ordinance outcomes, the following local outcomes apply.

Upon completion of the programme, students should be able to
- choose appropriate construction solutions, and design and dimension a building with regard to solidity, structural engineering and building physics, based on the present conditions, current norms and considering economical and environmental aspects
- plan, organise, calculate and manage a construction project towards its objectives on the basis of given conditions and with regard to current regulations, quality and the environment,
- contribute to quality assurance and sustainable development in the construction industry by adopting a holistic perspective.

Programme Structure

In the first year students study basic and introductory courses. In the second year there are building technology courses which are further developed and continue in year three.

Instruction is in the form of lectures, exercises, laboratories, individual and group projects, study visits, etc. Some course components, such as laboratory work and study visits, may be mandatory. Group projects require students to be present beyond scheduled hours. In many courses, students are examined continuously.

One of the grades Fail (U), Three (3), Four (4), or Five (5) is awarded in the examination of most courses in engineering programmes. Exceptions are specified in course syllabi.

Internationalisation

Karlstad University wants to promote collaboration and exchange with other universities. Karlstad University has partnerships with many other universities in Sweden and abroad, and has an organisation in place to support students who want to make use of this opportunity. Students are therefore encouraged to complete part of the programme at a university abroad.

Programme Curriculum

The programme comprises 110 ECTS credits in mandatory courses in Building and Construction Engineering, such as Introduction to Building Engineering, Building Structures, Construction Management and Sustainable Building Technology in addition to a degree project (22.5 ECTS credits), electives in Building and Construction Engineering (15 ECTS credits) and mandatory courses in Mathematics (15 ECTS credits), Energy and Environmental Engineering, and Sustainable Development (17.5 ECTS credits).

Credit Transfer

Students have the right to transfer credits from previously completed university courses in Sweden or abroad, subject to approval according to the current regulations.

Additional information

The local regulations for first and second cycle education at Karlstad University stipulate the obligations and rights of students and staff.

This programme syllabus will replace the previous version approved 10 May 2007.