Faculty of Health, Science and Technology

Programme Study Plan

Bachelor Programme in Computer Science

Programme Code	TGKDV
Programme Title	Bachelor Programme in Computer Science
	Kandidatprogram i datavetenskap
ECTS Credits	180
Approval	The Programme Study Plan was approved by the Faculty Board for Health, Science and Technology on 6 December 2018 and is valid from the autumn semester of 2019 at Karlstad University.
Language of Instruction	Swedish and English
Degree Level	Bachelor
Degree Type	General
Prerequisites	General admission requirements plus upper-secondary school level Mathematics 3c (field-specific eligibility A8 with the exception of Physics 2 and Chemistry 1), or general admission requirements plus upper-secondary school level Mathematics D (field-specific eligibility 8 with the exception of Physics B and Chemistry A).

Introduction
This study programme provides thorough knowledge of software design with the opportunity of either broadening skills or specialising in, for example, software development, privacy and security, computer networking or usability (depending on chosen courses). The programme leads to a general bachelor's degree in computer science and gives students more course options than an engineering programme that includes compulsory courses with upper-secondary Physics 2 (or Physics B) as an entrance requirement. Graduates are equipped to work in the IT sector, for example as programmers, software developers, IT developers or IT consultants.

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Aims
National degree outcomes from the Swedish Higher Education Ordinance (Annex 2):

Knowledge and understanding
For a Bachelor's degree, students shall
- demonstrate knowledge and understanding in the main field of study, including knowledge of the disciplinary foundation of the field, knowledge of applicable methodologies in the field, specialised study in some aspect of the field as well as awareness of current research issues.

Competence and skills
For a Bachelor's degree, students shall
- demonstrate the ability to search for, gather, evaluate and critically interpret the relevant information for a formulated problem and also discuss phenomena, issues and situations critically
- demonstrate the ability to identify, formulate and solve problems independently and to complete tasks within predetermined time frames,
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences, and
- demonstrate the skills required to work independently in the main field of study.

Judgement and approach
For a Bachelor's degree, students shall
- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues,
- demonstrate insight into the role of knowledge in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the need for further knowledge and ongoing development.

Independent project (degree project)
A requirement for the award of a Degree of Bachelor is completion by the student of an independent project (degree project) for at least 15 ECTS credits in the main field of study.

In addition to the national outcomes from the Higher Education Ordinance, the Bachelor Programme in Computer Science has the following local degree outcomes, according to which students shall
- demonstrate knowledge on the significance of society in the application and development of computer science, and
- demonstrate ability to reflect on computer science and the role of its applications in society in relation to human rights, ethics and privacy.

Programme Structure
The first year of the programme mainly comprises basic courses in programming and mathematics to obtain the knowledge required in the second year. The second year provides broad knowledge in computer science and builds on the programming and mathematical skills developed during the first year. During the first two years, students take many courses together with students on the Bachelor of Science in Engineering: Computer Science and Master of Science in Computer Engineering programmes.

The third year comprises two courses in software development and privacy and security, a mandatory degree project, as well as 30 ECTS credits of optional courses for specialisation or broadening. We offer four specialisations that may be taken as optional courses. These are closely connected to the research done at the university in software development, privacy and security, computer networking, and usability. These specialisations can be combined, to some

extent, depending on the options chosen. Students may also choose to take other optional courses in computer science or other subjects to give their degree a particular profile. There are also good opportunities to take courses at other universities in Sweden or abroad.

Students on the programme are offered support in planning their studies, also when taking courses internationally or at other Swedish universities. This study programme leads to a general degree, which means that students can choose to take courses that are not part of the programme during the third year, or spend the entire fifth semester at another university in Sweden or abroad.

Opportunities are available for collaborating with the community during the study programme, thus enabling students to meet potential future employers and embark on interesting degree projects. These opportunities are created through activities connected to SNITS, a network group that facilitates exchange between business and IT students at Karlstad University, and through guest lectures.

The study programme concludes with a degree project, which can be done at one of our partners in the region such as businesses and public agencies, or as part of one of the current research projects in computer science at the university.

Teaching is mainly offered in the form of scheduled lectures, laboratory sessions and project work.

Programme Curriculum
The first two years of the study programme include:
- at least 75 ECTS credits in computer science, including courses in programming techniques, software development methods, operating systems, programming languages, computer systems engineering, as well as data structures and algorithms;
- at least 7.5 ECTS credits in mathematics.

The final year includes a mandatory degree project (15 ECTS credits in computer science) and 30 ECTS credits of optional courses. We recommend choosing from four specialisations (15 ECTS credits each) in software development, privacy and security, computer networking, and usability. These specialisations can be combined to some extent, depending on the specialisations selected.

Degree Title
Students who fulfil the degree requirements are entitled to a degree certificate from the university. The following degree is awarded:

English	Bachelor of Science: Computer Science
Swedish	Filosofie kandidatexamen, huvudområde datavetenskap

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.