Computer Science, Master’s Programme, 120 credits

Avancerad nivå/Second Cycle

1. Approval

The programme plan is confirmed by the IT Faculty Board on 2007-03-07 and revised 2011-03-17. The programme plan is valid from autumn term 2011.

1.2 Main field of study

The main field of study is Computer Science. The programme has five specialisations.

- Algorithms, Languages and Logic
- Interaction Design
- Natural Language Technology
- Computer Systems and Networks
- Software Engineering

The aim of the programme is to equip students with the knowledge, skills, and abilities required for a successful professional career in a large variety of information technology areas, both in industry and in academia. The emphasis on modelling, design, and on conceptual abilities aims at providing students with a great flexibility, allowing them to adjust to emerging work requirements. In particular, the programme aims at enabling future IT professionals to conceive, design, and implement systems which are functional (i.e., delivering the correct service), maintainable (i.e., able to undergo modifications and repairs), and reliable.

2. General Goals for Higher Education According to Högskolelagen (HL)

Education on the advanced level shall, essentially, build upon the knowledge that students got from their education on the basic level or equivalent knowledge. Education on the advanced level shall deepen their knowledge and skills, compared to the education on the basic level, and shall also, beyond the corresponding goals of the basic level,

- further develop the students' ability to independently integrate and apply knowledge,
- develop the students' ability to handle complex phenomena, problems, and situations, and
- prepare the students for their professional activities that make high demands on their independence, or for their work in research and development.
3. Degree

With fulfilment of the degree requirements of the Master's Programme, the University of Gothenburg grants the "Degree of Master of Science with a major in Computer Science", 120 credits whereof at least 60 credits in the main field of study. For the master's exam includes a thesis work, 30 credits. If a student has moreover fulfilled the requirements of a certain specialisation, that is, has taken a sufficient number of core courses and elective courses in the specialisation, she/he can request to have the specialisation included in the degree, in the form of "Degree of Master of Science with a major in Computer Science with some of following specialisations:

- Algorithms, Languages and Logic
- Interaction Design
- Natural Language Technology
- Computer Systems and Networks
- Software Engineering

The degree contains at most one specialisation.

The students apply by themselves for the degrees (examensbevis) after finishing their studies.

3.1 Master's degree in Computer Science

The Master's degree in Computer Science is a general degree according to The Higher Education Ordinance, 1993:100, Appendix 2 (Högskoleförordningen, bilaga 2)

3.2 Local outcomes

Knowledge and understanding

For the master's exam the student shall

- be generally competent in the Computer Science discipline,
- be familiar with existing scientific knowledge in the major CS areas,
- have the competence to increase and develop this through study,
- have a thorough mastery of parts of the relevant fields extending to the forefront of knowledge, i.e., latest theories, methods, and techniques,
- be competent in acquiring new scientific knowledge.

Skills and Abilities

For the master's exam the student shall

- be competent in designing systems in accordance with predefined requirements.
• she/he also able to deal with the changeability of the design process through external circumstances or advancing insight.
• have a scientific approach, characterised by the development and use of theories, models and coherent interpretations,
• have a critical attitude, and has insight into the nature of science and technology,
• have skills in the development and validation of models, and
• be able to consciously choose between modelling techniques.

Power of Judgement and Attitude

For the master's exam the student shall

• possess general intellectual skills, i.e., competence in reasoning, reflecting, and forming judgements independently,
• be competent in cooperating and communicating, which includes adequate interaction, a sense of responsibility and leadership,
• be able to participate in a scientific or public debate,
• take into account the context of science and technology in society,
• be aware of the origins of beliefs and methods,
• be aware that decisions have social consequences, and can integrate these insights into her/his work.

3.3 Organization and Contents of Education

The programme offers many courses which apply a variety of educational concepts. They are largely composed of lectures, practical assignments, exercise sessions, group work, student presentations, the writing of reports, and written or oral exams. All these activities have built in some form of feedback, in written or oral form, provided by the teacher, courses assistants or fellow students.

It is a particular feature of the programme that students enjoy a large degree of freedom in choosing courses. In spite of that, the studies of each individual student are guided by the study counsellor of the programme. It is only the study counsellor who can register a student for (non-compulsory) courses, normally after personal consultation. Thereby, the programme guide the students to take a meaningful path through the variety of offers, developing a profile which matches both personal inclinations and prospective career opportunities.

The programme has five specializations with following courses:

**Algorithms, Languages, and Logic**
- Algorithms
- Logic in Computer Science
- Programming Language Technology

**Interaction Design**
- Graphical Interfaces
- Interaction Design Methodology
- Interaction Design - Project
The master's thesis is usually written during the last half year of education.

4. Entry Requirements

The entry requirements for the Master's Programme in Computer Science are:

- a Bachelor's degree (kandidatexamen) in Computer Science, Computer Engineering, Computational Linguistics, or equivalent. An exception can be given for students that have obtained 150 credit points of university studies including a Bachelor's thesis in Computer Science or Computational Linguistics at University of Gothenburg.
- proficiency in English corresponding to either of: level B from upper secondary school in Sweden, or IELTS 6.0 (with no part below 5.0 and at least 6.5 for the writing), or at least 550 in TOEFL.

Special prerequisites for courses within the programme are stated in the respective course plans.

5. Selection of Students

Selection is done in accordance with the Higher Education Ordinance and Gothenburg University’s admission regulations for education at first and second level ("Högskoleförordningen and Göteborgs universitets antagningsordning för utbildning på grundnivå och avancerad nivå").

http://www.utbildning.gu.se/student/reglerochkritlinjer/antagningsochexamensordning/
5.1. Guaranteed Seat (Platsgaranti)

Students that, at normal pace follow the programme have a guaranteed seat in the programme. There are two types of guarantee: general and restricted. The general guarantee involves that the student has a guaranteed seat in mandatory courses in the programme, including each of the mandatory elective courses. Admission to elective courses is done through local admission procedures, with selection in accordance with the Admission Regulations of Gothenburg University ("Göteborgs universitets antagningsordning"). Restricted guarantee gives the student a seat in a course, but not necessarily the student’s first priority.

6. Approval of Earlier Education

Students have in appropriate cases the right to get approval of earlier university studies or professional experience, in accordance with the regulations in the Higher Education Ordinance (Högskoleförordningen). The decision on approval of an entire course is taken in accordance with Delegation of Authority (Delegationsordningen).

7. Marks

There exist three marks in the programme: Väl Godkänd (Passed with Distinction), Godkänd (Passed) and Underkänd (Failed).

8. Evaluation

Students are to be given the opportunity to communicate their experience and views regarding the courses in the programme. The results of the evaluations are used for planning and implementing of new courses. The processed results are available for new students in the beginning of courses. In connection to the finalizing thesis work the programme will be discussed and evaluated with the students.