



UiT The Arctic University of Norway

Program description

Computer Science

120 ECTS / Campus Tromsø

The program description has been approved by the board of Studieutvalget at the Faculty of Science and Technology on June 11th, 2025



Study programme name	English: Computer Science - master
Degree obtained	Master of Science in Computer Science
Target group	Computer Science Master is suitable for those interested in computers, computer systems and programming. The candidates want to develop new technology for the benefit of society and business industry, and preferably in cooperation with people who have their competence in other disciplines such as health science, science, engineering, economics, education/pedagogy, etc. The master candidates are well prepared to act as a reliable computer science experts and are able to develop computer solutions for relevant and complex problems in the private or public sector. They are also prepared for teaching and consultancy tasks, and for further studies up to the doctorate in computer science. The education, together with the interest in maintaining and further developing of their own academic insight and competence, will form an important basis for their professional career. Most of our graduates go to engineering positions in the private or public sector. During the career there are many who gradually get management positions with different combinations of management and technical tasks.
Admission requirements, required prerequisite, recommended prerequisite knowledge	Admission to the Master's programme in Computer Science requires a Bachelor's degree (180 ECTS) or equivalent qualification, with a major in Computer Science of minimum 80 ECTS. Applicants must have a minimum grade average comparable to a Norwegian C (2,5) in the ECTS scale, see the UiT webpage for International admissions for more information on how the point average is calculated. Applicants with education from non-Nordic countries must document English language proficiency. More information on English language requirements is available on the UiT webpage for International admissions. Number of places /students fall 2025: 20 Applicants from Norway or Nordic countries: • The application deadline for Norwegian and other Nordic applicants is April 15th for admission to the autumn semester • Online application, study code 4008. Applicants within EU/EEA/Switzerland (except the Nordic countries): • The application deadline for applicants within EU / EEA / Switzerland is March 1st for admission to the autumn semester. • Online application, study code 7102. The program is not available to applicants from outside the Nordic countries and the EU / EEA / Switzerland (Non EU / EEA applicants).
Certificate of good conduct	Not relevant
Suitability assessment	Not relevant

The study programme's Learning Outcome	<i>Knowledge – The candidate has...</i> • a broad solid foundation in computer science • considerable depth of understanding of a selected area of specialization • a deep understanding on state of the art distributed and parallel software architectures • a solid knowledge about risks and threats in computer systems and their related security measures • a solid understanding of system and application development relevant to the chosen specialty <i>Skills – The candidate can...</i> • work independently on a significant non-trivial scientific problem • analyze a problem and plan how to work towards a solution • plan, organize and execute the work required to solve the problem. • adapt to changes and limitations when solving the problem • demonstrate the feasibility of the solution by implementing key parts • collect and analyze relevant metrics characterizing the problem and the solution • write a well-structured and clearly formulated report describing the thesis work and reflecting on its results <i>General competence – The candidate ...</i> • can contribute to the continued development of computer science as a dynamic field under the influences of advances in the discipline, changes in technology, and in application areas, business models, and businesses. • can communicate effectively, orally and in writing, within the field, and with the public as well as experts in other fields • can pursue life-long learning and development • understands relevant social and ethical issues and can apply this awareness to their professional conduct • can contribute to new thinking and sustainable innovation processes
Academic content and description of the study programme	Computer Science Master is a full-time study programme offered at UiT's campus in Tromsø. The study programme provides the student with a solid foundation in computer science, combined with deeper and more detailed understanding and skills within the chosen area of specialization in the master thesis. The study programme consists of 110 ECTS credits of program courses including a 60 ECTS credit master's thesis and 10 credit of a general subject, in total 120 ECTS credits. Since the study programme is very experimental with a lot of practical programming exercises and laboratory work emphasis is placed on that the students are acquiring computer science and engineering skills. The computer science courses are directly connected to the on-going research carried out by the academic staff at the department. For the master thesis the student will apply broad skills in computer science,

	combined with deeper insights in the selected specialty to solve difficult problems within the particular area the student is pursuing. The theme of the master's thesis will reflect and shall contribute to ongoing research activities at the department within the broad areas of computer systems research and/or medical informatics and applications. Current topics include software architectures, distributed systems, parallel systems, exascale computing, computer security, programming methodologies, dependable systems, real-time systems, operating systems, performance measurements and evaluation, large scale visualization, feature-rich large-scale search, computer networks and communication, handling of massive data, web-services and -architectures, collaborative editing, bioinformatics, social media, analysis of social data, medical informatics and technological issues in health sciences. The student may also specify the master thesis based on his/her own interests or write a thesis for a company.																	
Table: programme structure	<table><tr><th>Semester</th><th>10 credits</th><th>10 credits</th><th>10 credits</th></tr><tr><td>1. semester</td><td>INF-3200 Distributed Systems Fundamentals</td><td>FYS-2021 / INF-3010 / INF-3201 / INF-3310 / INF-3315 / INF-3770 *</td><td>TVR-3000 Activating Transformations for Sustainability</td></tr><tr><td>2. semester</td><td>INF-3203 Advanced Distributed Systems</td><td>Elective **</td><td>Elective **</td></tr><tr><td>3. semester</td><td colspan="3" rowspan="2">INF-3990 Master's Thesis in Computer Science</td></tr><tr><td>4. semester</td></tr></table> *) One of these courses: FYS-2021 Machine Learning, INF-3010 Energy Informatics - Smart Energy and Power Systems Modelling, INF-3201 Parallel Programming, INF-3310 Advanced Computer Security, INF-3315 Privacy Preserving Computation, INF-3770 Health informatics. **) INF-3210 Energy Informatics - Green Computing, INF-3600 Generative AI, INF-3780 Advanced health informatics in practice.	Semester	10 credits	10 credits	10 credits	1. semester	INF-3200 Distributed Systems Fundamentals	FYS-2021 / INF-3010 / INF-3201 / INF-3310 / INF-3315 / INF-3770 *	TVR-3000 Activating Transformations for Sustainability	2. semester	INF-3203 Advanced Distributed Systems	Elective **	Elective **	3. semester	INF-3990 Master's Thesis in Computer Science			4. semester
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Learning activities, examination and assessment	The study programme offers a varied teaching programme while most courses are intensive and project oriented. In lectures, theory and academic theme are examined. In the group work, students are expected to be active in discussions of issues in the subject matter. Students work in laboratories where compulsory assignments are solved to acquire practical skills in designing, building and maintaining computer systems, either individually or in teams with other students. In addition to collaborating with other informatics students, the students will also work with people who have knowledge in other areas. In order to train this, it is important that the student takes an active role, is present and contributes to the learning environment, both in organized teaching and otherwise during the weeks where the students cooperate and largely learn from each other. All academic staff who teach the study programme are active researchers in various research projects. The courses are based on relevant research and are related to the departments research activity. The student will be able to engage in projects in the research laboratories along the way. Special curriculum and master theses are often part of a larger project context, in a																	

	working community in a research group. In the work on these assignments, individual guidance is provided from the department's academic staff. The Master's thesis may by agreement also be conducted in, or in cooperation with, a company.
The study programme's relevance	Computer science is today's most expansive, innovative and applied discipline and technology. Knowledge of computer science methods and tools is currently included in most areas of knowledge production and other value creation in today's society. Application in other disciplines also concerns because computer science is an important factor for the further development of these. The study programme leads to a degree as a Master of Science in Computer Science and qualifies for admission to the PhD programme in Science, assuming satisfactory grade level.
Work scope	To complete the study programme until the master's degree requires motivation and targeted work effort. To achieve the learning outcomes for the study programme, students must expect to spend more than 40 hours a week in the study from the study start, including lectures, group hours, laboratory work and self-taught self-study.
For master's theses/independent work in master's degrees	The master's degree thesis consists of an independent scientific work of two semesters, equivalent to 60 ECTS credits. The thesis must be done individually, as group collaboration usually is not permitted. A supervision contract for the thesis is set up before the start-up, which regulates rights, obligations and resource use and resource access for the parties involved. Assessment form is submission of a master thesis and final oral exam.
Language of instruction and examination	The language of instruction is English and all of the syllabus material is in English. Examination questions will be given in English, but may be answered either in English or a Scandinavian language. Also the Master's thesis may be written either in English or a Scandinavian language.
Internationalisation	Since the study is English-thought, there will be international students from different parts of the world. The academic staff at the department associated with the study programme has active cooperation with leading research communities internationally, and this also benefits the students in the form of guest lectures.
Student exchange	Exchange stays at other educational institutions in Norway or abroad can by agreement be included in the programme. The Department of computer science has subject-specific exchange agreements (Erasmus + and EUGLOH) with several universities in Europe. Students can carry out an exchange stay in the second semester of the study. The courses scheduled for completion during the exchange period must be pre-approved in consultation with the department. The department will in each case assess how and to what extent external courses can replace mandatory subjects in the student's education plan at UiT.

	Students wishing to carry out an exchange stay as part of the study programme must contact the department administration in good time before leaving, no later than the semester start of the semester before departure. The pre-approved courses are included as part of the study at UiT. If the student do not accomplish the pre-approved arrangement this may lead to extended study time. The amount of work should be representative of the period during which the student is on exchange stays.
Supervised professional training	Not relevant
Administrative responsibility and academic responsibility	Programme management with the academic responsibility of the Computer Science - Master has been added to the department board at the Department of Computer Science. The Department of Computer Science at the Faculty of Science and Technology is administratively responsible for the study programme.
Quality assurance	The study programme is evaluated annually. The courses included in the study programmes are evaluated at least every third time they are given. Course evaluation is normally conducted as a dialogue between the students and the teacher, combined with the assessment of available data. An overview of the courses to be evaluated each semester can be found on the faculty's web pages. Annually, each class on the study programme elects a representative who can be spokesperson towards the academic community in various study-related cases. The courses of the study programme change as a result of the development of computer science as a discipline, the relevant technologies available and the department academic staffs evaluation in dialogue with the business industry. For good quality assurance of learning outcomes, exam questions are evaluated against national quality standards in computer science as practiced at the universities of Oslo, Bergen, Trondheim and Tromsø. Well-qualified external examiner are used in accordance with UiT regulations.
Other regulations	Faculty of Science and Technology has prepared <i>Supplementary provisions for the two years master's degree programme</i> (120 credits).

