

*Study and Research*  
*in*  
**COMPUTER SCIENCE**

The city of Joensuu is situated in eastern Finland, about 400 km north-east from Helsinki, in the province of North Karelia. City of Joensuu was founded in 1848, and it has a population of over 52 000.

The University of Joensuu was founded in 1969. We have six faculties as well as nine independent units. The University has approximately 6500 undergraduate students, 750 post-graduate students and about 80 other students in education, arts, theology, science, social sciences and forestry. About 600 master's degrees, 30 licentiate degrees and 60 doctoral degrees are awarded every year at the University of Joensuu.

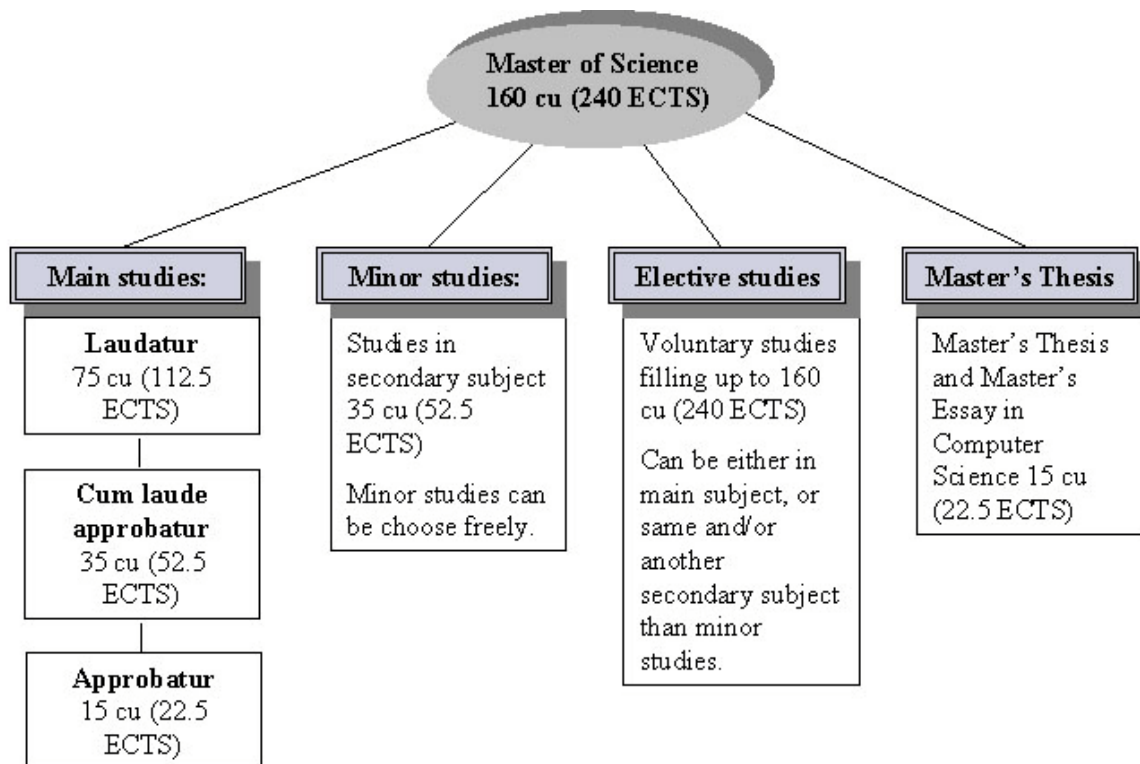
The teaching of Computer Science started in 1972. The first major students in Computer Science started in 1980, and the first Master of Science graduated in 1984. The full degree program in Computer Science started in 1985.

Currently about 100 new students start in the degree program annually, and about the same number of students take Computer Science as a minor subject. In addition, over five hundred other students include some elementary Computer Science courses in their programs.

The number of teaching staff is 21 people, consisting of 5 professors, 4 senior lecturers, 1 lecturer, 3 senior assistants, 6 assistants and 2 planning officers. In additionally our department has about 40 researchers and 8 administration people.

## Structure of Computer Science studies

In Finnish university systems the progress of studies is measured in credit units: 1 credit unit (cu) corresponds to 40 hours of work (1 cu is approximately 1.5 ECTS, European Credit Transfer System credits). In Figure 1 you will see the structure of Master of Science studies (MSc) at our department.



**Figure 1:** Structure of MSc studies

Alternative orientations for a basic degree are general program (structure of studies shown in Figure 1), software engineering program, and information technology teacher program. General Program focuses on programming and theories of computation. Signal Processing concentrates on multidimensional signals and the processing methods of them. Teaching Technology develops new educational tools, based on distance education or artificial intelligence, for example. Software Engineering is more practical and aims at more vocational objectives. IT teacher's orientation provides abilities to work as a teacher in schools or as a trainer in enterprises.

Students can choose their minor studies freely, but recommended subjects include: Mathematics, Statistics, Physics, Chemistry, Biology, Geography, Forestry, Economics and Business Administration. After graduation student can continue studying for the degrees of Licentiate of Philosophy or Doctor of Philosophy.

## ***Research***

The research at the Department of Computer Science are related to different aspects of software engineering, signal processing and computer science education as follows:

1. **Software engineering** (professors Jorma Sajaniemi and Marja Kuittinen: research interests include software quality engineering, software engineering tools and human-computer interaction),
2. **Signal processing** (professors Jussi Parkkinen, Markku Hauta-Kasari and Pasi Fränti: research interests include color research, vector quantization and clustering, and image compression), and
3. **Computer Science education** (professors Erkki Sutinen and Marja Kuittinen: research interests include computer aided instruction, thinking tools for the Net, and educational technology).

More details in URL: <http://cs.joensuu.fi/pages/amanuenssi/research/research.html>

## ***Functional working and studying environment***

The department of Computer Science is situated in the building of Joensuu Science Park Ltd. The Science Park is center of technology enterprises, business services, research units and education. Our situation enables close partnership with IT enterprises. Our modern and functional working and studying environment is enjoyed by students and researchers alike.

Most of the Computer Science literature is available at the library of CS department, which is located at the Jones Science Park. Our department has also great experts as administration people who are able to give technical support and secretary services whenever needed.

## ***Laboratories***

Our department has four laboratories for research purposes: *Color Lab*, and *Audio and Vision Lab* are used especially in research topics like signal processing, color research or image compression. *Teaching Technology Lab* is used for the purposes of educational technology, and e.g. for creating new learning tools in the area of educational technology. Research groups of software engineering use *Cognitive Lab* in order to focus to the human-computer interaction. Each of the labs has special equipments and software to enhance the high-quality research at our department.

*The Department of Computer Science:*

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