The Department of Information Technology:

World class education and research with unique scope and depth of scientific knowledge
The premises of the IT department used to house Uppland Regiment (Upplands signalregemente, S1), Swedish Armed Forces. Today the buildings are a modern work environment for education and research.

It was not long ago that the concept of information technology did not even exist. Researchers previously engaged in what is now called IT worked with topics far removed from the everyday life of the general population. Today information technology is an integral part of our society. This goes for everything from computers, the internet, and mobile phones to electronic commerce, advanced medical equipment and a wide range of other technical systems.

Research quality in the IT Department is a result of the skills and dedication of the staff. Our goal is to recruit and retain capable and eminent co-workers. The key factor in our success is our commitment to a positive and enjoyable work culture characterised by openness and tolerance. A professional and well-functioning administration is another key success factor.

Our vision is to conduct education and research of the highest international standard. The department of Information Technology has a breadth of activities unparalleled in Sweden. Research and teaching at the department spans the entire field of information technology within a single coherent organisation. We are active in fields ranging from data collection and data management, signal processing, computation and automatic control; to communication of the results with the help of database technology and human-computer interaction. The department also has a strong research profile in pure basic research in the areas of theoretical computer science, real-time systems, computer architecture, scientific computing and systems and control.

The IT department is the foremost in the country in the field of information technology. A number of peer evaluations in the last few years identify Uppsala’s IT department as being of quality and great international impact. The research has been evaluated as world class or world leading in several areas.

IT has changed everyday life and will continue to have shape our future in new ways. Our students, teachers, and researchers all contribute to this process!

Håkan Lanshammar
Head of Department

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EDUCATION

Our strong focus on research provides a good basis for undergraduate education of outstanding quality. The department offers a broad range of independent courses and programme courses and offers a range of bachelor, five year engineering and masters programmes.

The department gives courses in all engineering programmes at Uppsala University, in particular, the programmes in Information Technology, Sociotechnical Systems Engineering and Engineering Physics.

The Computer Science Programme is a three-year bachelor programme run by the department. This programme provides students with a broad education in computer science. Furthermore, the department offers three masters programmes with a significant proportion of project work and hands-on problem solving through cooperation with partners in industry and the public sector.

RESEARCH

In many cases our research is at the international front line. Apart from fundamental research we take part in a large number of cooperative projects with various branches of learning in business and the public sector. Around 80 Ph.D. students and 80 researchers and senior lecturers, among them 25 professors, are engaged in different research projects. Around 30 research groups are attached to the department. Several of our professors have a background in industry. Sixty percent of the total research budget consists of external funding.

FACTS IN BRIEF

STAFF
• 200 employees work at the department
• 80 faculty members, among them 25 professors, sharing their time between research and education
• Over 90% of the academic staff have obtained doctorates
• 6 pedagogical prize winners (1994-2008)

RESEARCH
• 1 member of the European Academy of Sciences
• 1 member of the Royal Academy of Sciences
• 1 member of the Royal Research Society
• 2 members of the Royal Academy of Engineering Sciences

POSTGRADUATE EDUCATION
• 80 Ph.D. students
• 105 doctorates and 91 licentiate exams 1999-2008
• 2 national research schools

UNDERGRADUATE STUDIES
• Around 3,000 students annually study one or more courses at the department
• 830 full-time equivalent students studied in the department in 2008
• Around 20 study programmes, 150 courses per academic year
• 200 computer workstations for students
Research at the division of Computing Science is concerned with algorithms, their properties, data base technology, programming languages, computer architecture, compiler construction, testing, robust and correct machine code, methods for specification and analysis of programs, electronic commerce and resource allocation.

The division of Human-Computer Interaction does research on methods for making computers and other technical systems more usable and efficient, especially in working life. Design, construction and evaluation of IT systems and user interfaces are important components of this work. Applications are, for example, health care, process and traffic control, and administrative work.

Research at the division of Computer Systems aims at developing efficient and reliable software and hardware. There are specialisations in architecture, computer networks, machine systems, embedded systems, formal methods for specification and analysis of programs, methods for machine learning and development of new pedagogical methods for teaching computer science.

Well-organized administrative support is necessary for education and research to function. As we are a large department the organisational structure consists of seven units. Apart from the five core divisions we have an administrative unit handling student affairs, personnel and financial affairs, and a computer support group. Effective and professional technical and administrative support means that work in the various divisions may be carried on as smoothly and efficiently as possible.

Research at the division of Scientific Computing is geared towards fast and reliable computational methods, theoretical studies using advanced mathematics as well as development of algorithms and programs for high-performance computers. There are many application areas, such as financial mathematics, computational fluid mechanics, bioinformatics, computational electromagnetics and computer tomography.

Research at the division of Systems and Control is conducted in the areas of estimation, system identification, signal processing, spectral analysis and automatic control. Applied research areas are wireless communication, radar and sonar, geophysics, robotics, mechanical systems, process control, medicine and environment.
PRIZES AND AWARDS

- Pedagogical prize winners: 6
- Undergraduate Education: Department of the Year 2009
- Highly cited Researchers: 2
- World leading research, KoF07 (An Overall Evaluation of Resources at Uppsala University)
- Uppsala University; Leading University in Sweden within Computer Science/Mathematics, SOU 2007:81
- Very high marks in assessments by the Swedish National Agency for Higher Education