Undergraduate education

The department offers about 100 different courses in four main areas: Control Systems, Electronics, Image processing, and Telecommunications. Courses are mainly given to students in the masters programs of Applied Physics and Electrical Engineering (Y), Computer Science and Engineering (D), and Information Technology (IT). Nevertheless a large number of students in other programs, such as the Master of Science in Engineering, the Bachelor of Science in Engineering and other Master’s Programs, are taking our courses as well.

Our courses typically cover theory but they also put strong emphasis on engineering skills like problem solving, experimental laboratory work, and sometimes complete projects including construction.

Research and postgraduate education

The department has research in four main areas: Control Systems, Electronics, Image processing, and Telecommunications. All research is characterized by active participation in the scientific forefront both in Sweden and internationally. Strategic collaborations are manifested by several excellence centers within the department. As a result the postgraduate education successfully combines relevance and quality.

The Department of Electrical Engineering (ISY) is central to the engineering education at the Institute of Technology, one of four faculties at Linköping University, and this regards both basic and applied research. The knowledge is based on industrial needs, and ranges from basic research to direct applications in collaboration projects.

Welcome to the department of Electrical Engineering.

The department of Electrical Engineering was formed in 1972 and has since then been active in the technical development in Sweden. Several new companies have evolved from research at the department, and the research has also been instrumental in the established industry through all former graduated students and engineers now employed. The basis for all this has been the strong connection and good interest between education, research, and the world outside the university.

The research at the department of Electrical Engineering is conducted in close collaboration with industry and other universities in Sweden and abroad.


Research in Computer Engineering

The research at the division covers a wide range of methods within selected computer science areas: cognitive systems, decision recognition, image analysis, and medical imaging. These methods have found applications in various branches of mechatronics (robotic systems), sensor fusion, and in medical image analysis. There is also a strong collaboration with the Vehicular Systems division on advanced driver assistance systems. Another important area is image-based compression and analysis, with applications in medical imaging and autonomous vehicles.

Research in Electronics Systems

The research in Electronics Systems is directed towards the development of electronic systems for analog and digital signal processing and communication systems. This includes all design levels starting from specification, system architecture, algorithms, to the design of integrated circuits. The focus is on algorithm and hardware co-design, with an emphasis on the development of highly efficient circuits. Examples include digital filters, data converters, transistors, and interconnecting devices.

Research in Computer Vision

The research in Computer Vision focuses on pattern recognition, computer vision, and machine learning. A central issue in target tracking, localization and navigation. The picture illustrates uncertainty in a position estimate, which is a fundamental problem in target tracking, localization and navigation.

Research in Communication Systems

The research in Communication Systems is directed towards wireless communication systems, cryptography, and signal processing. The research is performed in areas such as information theory, coding, cryptography, and signal processing. Examples include secure data transmission, wireless communication, and cryptography.

Research in Vehicular Systems

The research in Vehicular Systems covers research in control, diagnosis, and optimization of functions in vehicles. The research includes research in advanced driver assistance systems, control coordination of vehicle and powertrain systems, and autonomous driving. Examples include control of vehicle dynamics, control coordination of vehicle and powertrain systems, and autonomous driving.

Research in Automatic Control

The research in Automatic Control focuses on control theory and applications. Examples include automatic control and optimization in control applications (in particular in predictive control). Modeling, and control of industrial systems, and decision support for autonomous and automated vehicles are important application areas of industrial relevance.