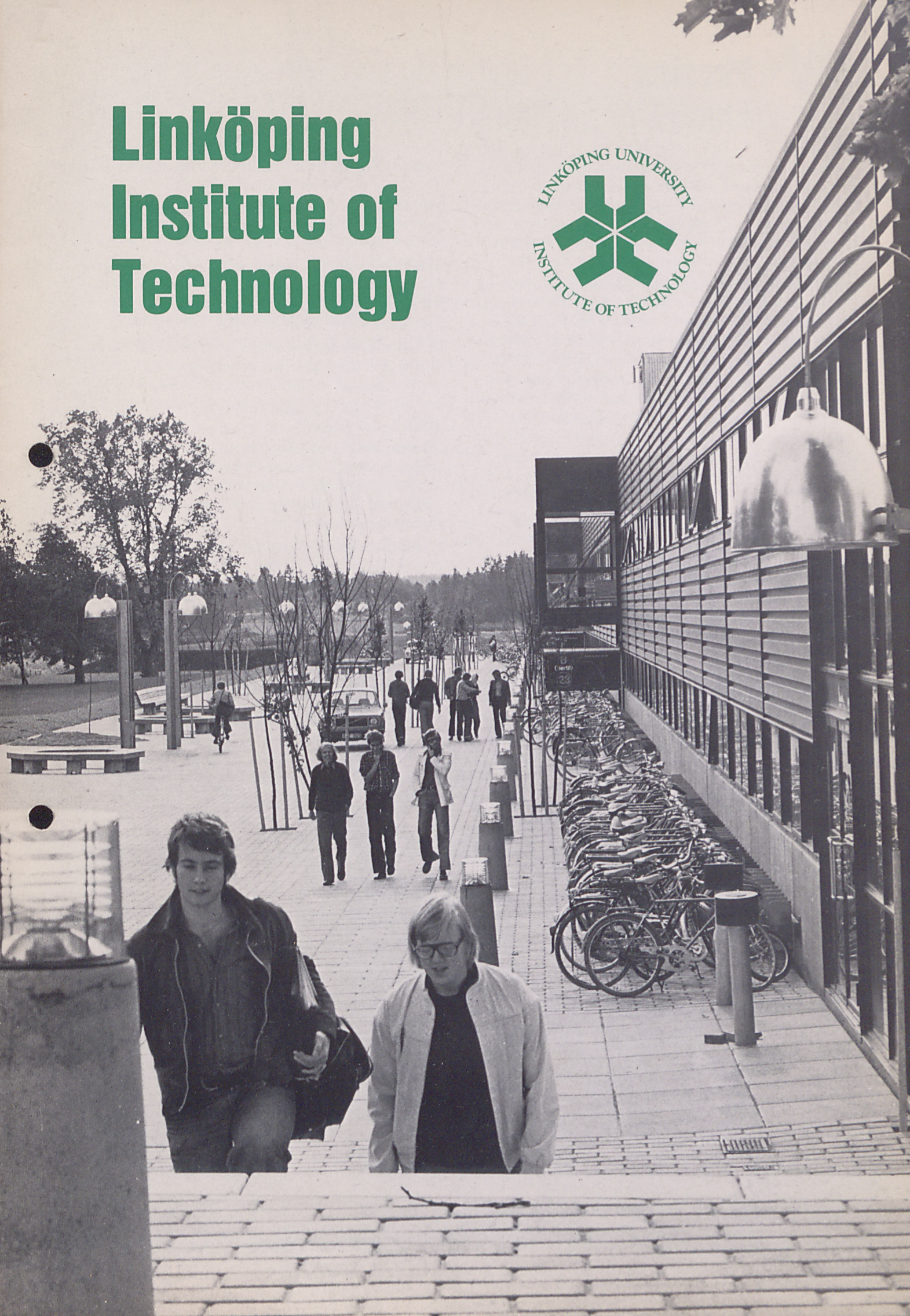


Linköping Institute of Technology



M Mechanical Engineering

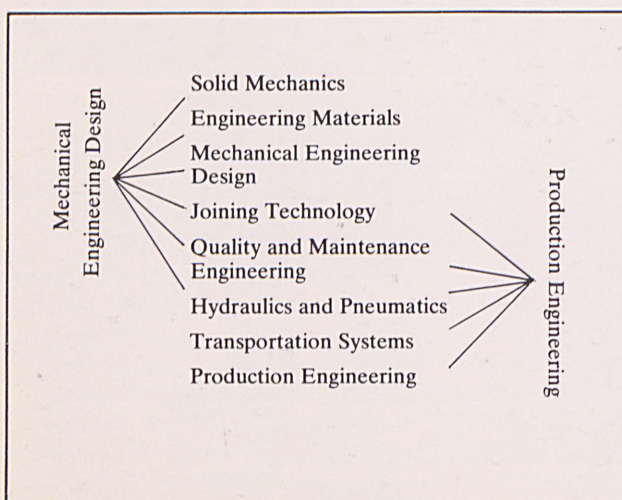
First and second years

Graduate mechanical engineers enjoy the prospect of an extensive range of posts involving many different types of work. Right from the beginning we seek to provide the Mechanical Engineering student with a firm educational basis in subjects appropriate to a wide variety of careers.

One requirement for success at an Institute of Technology is sound basic knowledge in mathematics and the natural sciences. Courses at LiTH therefore start off with an introductory course in mathematics. Much of the first two years at LiTH is taken up with basic subjects such as Mathematics, Engineering Mechanics, Physics, Electrical Engineering and Solid Mechanics. Practical subjects such as turning, forging, welding etc. are therefore not included in the first two years but are introduced in the subsequent years. Some practical work is however possible in the mechanical engineering department's own workshop. The mechanical engineering program offers technically oriented courses from the outset. During the first year you study Engineering Materials, which includes properties, production methods and areas of application for different materials – metals, plastics etc. You also learn to make and read design drawings – essential in all engineering work – unless of course you are already proficient at this.

Third and fourth years

During the third year Mechanical Engineering divides into two branches, Mechanical Engineering Design and Production Engineering. In the fourth year a further division is made, where you can choose one of eight subsidiary subjects. (See the diagram below). About one third of the teaching time in the fourth year is devoted to this subject. The subsidiary subjects involve specialized study of various aspects of modern industrial engineering. Here teaching is organized as project work in which theory alternates



Subsidiary subjects in the fourth year.

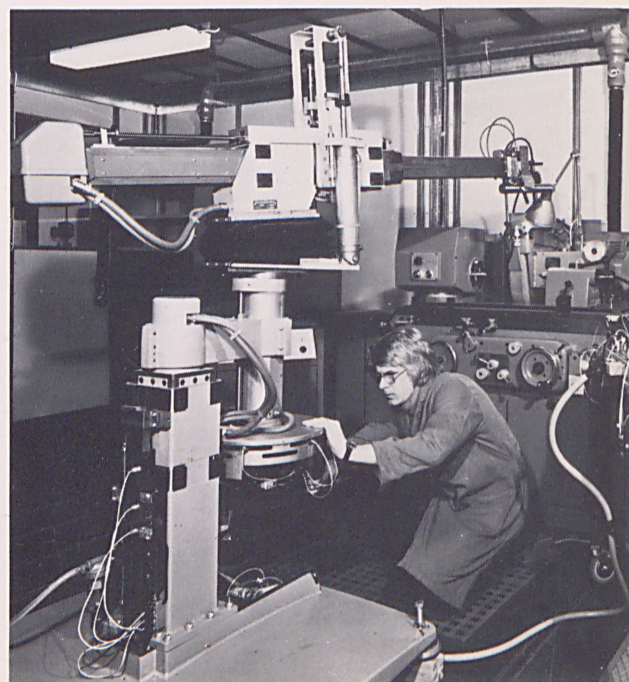
with laboratory experiments, computer calculations and study visits.

Most courses in the third and fourth years are technical. In addition, these years include courses in economics. Interaction between Man and his working environment is studied in the labor sciences, for example, Industrial Ergonomics. Apart from the subsidiary subjects, the third and fourth years offer a number of elective subjects so that you can tailor your education to your exact requirements. You can, for instance, choose a combination of subjects best suited for technical and financial administration.

Modern computer technology is used as an aid in solving problems during the entire study program. The fourth year is concluded with an independent project which is administered either by the Institute or by industry. Mechanical Engineering at LiTH is a professional education suited to both present and future market needs.

Career opportunities

The graduate mechanical engineer has by tradition a very wide choice of positions. The manufacturing industries which are the major employment category, recruit mainly mechanical engineers. The high rate of technical development places large demands on an engineer's ability in computation, design, production, economics and management. The market for mechanical engineers is very large and is thus less sensitive to fluctuations. Proof of this is the fact that no graduate mechanical engineer at Linköping has experienced any difficulty in obtaining employment. Mechanical engineers here have often found positions even before graduating.



Practical work using an industrial robot.

Y Physics Electrical Engineering

The programs of Physics and Electrical Engineering at the Linköping Institute of Technology share the same basic courses. Thus it is not necessary to choose between the two disciplines until a later point in your education when you feel you know which one suits you best.

All students of Physics and Electrical Engineering take the same courses during the first two years. These include the basic sciences of Mathematics, Physics, Engineering Mechanics and Electrical Engineering as well as Applied Electronics, Digital Technology and Measurement Technology. Before starting the third year of the four year course you must choose one of the following seven areas of specialization:

- Applied Mathematics
 - Applied Physics
 - Solid Mechanics
 - Biomedical Engineering
 - Measurement Technology
 - Communications Engineering
 - Computer Systems Technology
- Physics areas
- Electrical Engineering areas

Several courses are common to the seven subject areas. There is considerable freedom when choosing elective courses within each subject area.

Applied Mathematics involves a deeper study of mathematical subjects, for example, Optimization and Numerical Analysis. This subject area is the most theoretical of the seven and prepares students for positions requiring considerable ability in theoretical analysis of technical problems.

Applied Physics provides both a wide education in Physics and a closer study of Material Science and Analytical Physics including, for example, electron microscopy. Education is characterized by an interdisciplinary approach.

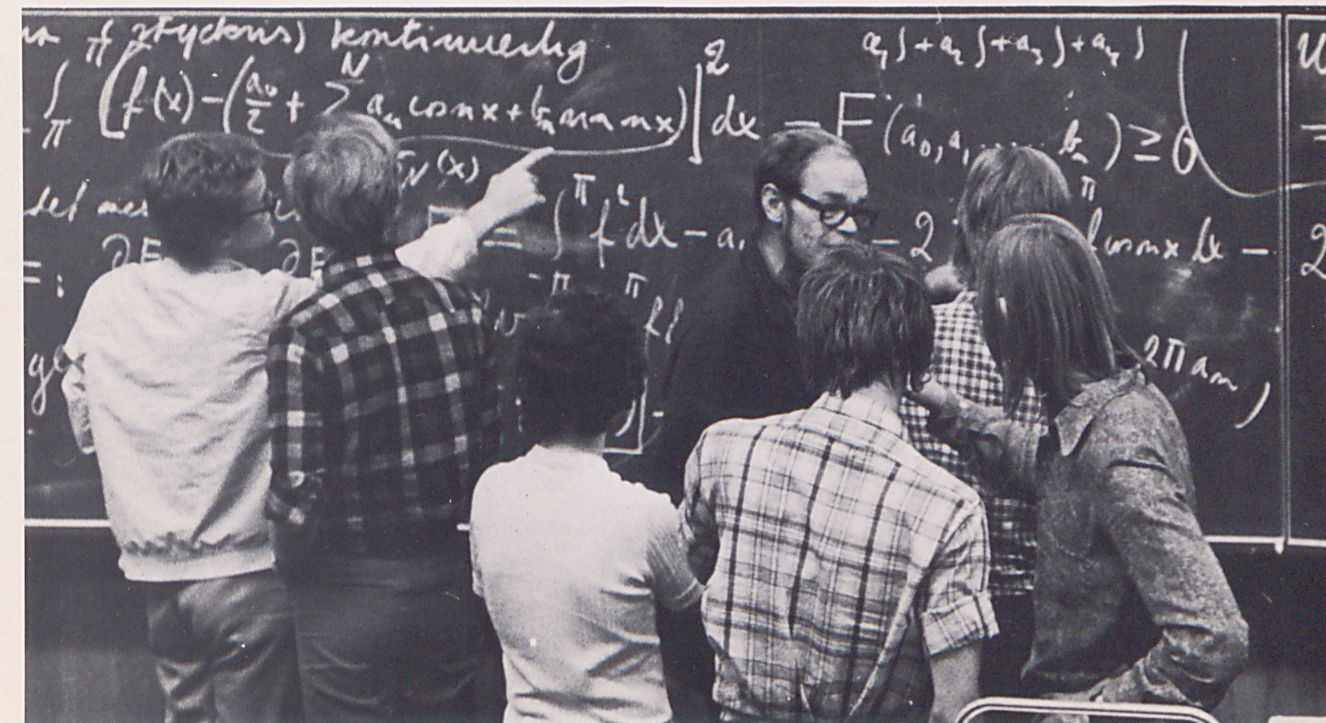
Solid Mechanics is a subject area intended as a basis for positions in the manufacturing industries. Graduate engineers in Physics specializing in Solid Mechanics enjoy a wide range of career alternatives.

In Sweden, **Biomedical Engineering** is offered only at LiTH. The third and fourth years' curricula include medical subjects as well as courses dealing with special instrumentation, equipment and data processing applied to health care.

Measurement Technology opens the way to many different careers. All modern technology, for example, in environmental protection, demands advanced measurement techniques and the technology used is rapidly expanding.

Communications Engineering is a specialization concentrating on modern theoretical electronics and its applications in communications, automatic control and data processing.

Computer Systems Technology offers a specialized education in computers and their use. Computer applications are steadily expanding and LiTH offers the first specialization in this field in Sweden.



Industrial Management Engineering

The initiative in introducing this new four year course leading to a graduate qualification was taken by the industrial and business world. The program we offer here provides an overall description of the company as an integrated technical and economic system. It is therefore well adapted to careers in industry and business where an increasing number of graduate engineers are involved in marketing, production control and other functions of a technical-economic nature. The emphasis placed on courses in Industrial Economics at Linköping Institute of Technology is unique for Sweden. The first group of students from this school graduated in 1973 and career prospects continue to look bright.

During the first two years the curriculum covers Mathematics, Engineering Mechanics, Solid Mechanics, Accounting, Managerial Economics and Conditions for Industrial Work. In the third year more applied courses are given, including Mechanical Engineering Design, Electrical Engineering, Production Engineering, Technical and Administrative Data Processing, Production Economics, Research Methodology etc.

In the fourth year any one of five different subject areas may be chosen. A number of elective subjects are also offered by the Institute. Undergraduate studies are concluded with a Master's project taking about three months to complete.

The five subject areas are:

Production Planning and Control. This program provides a qualified practical and theoretical ability in the field of production, inventory and materials control. The courses are adapted to the demands of the future, involving greatly increasing application of computer-based systems for production and inventory control.

Investment Planning and Economic Planning involve theoretical and practical training for analyzing and solving problems associated with a company's acquisition and use of capital resources. The program is adapted to meet the needs of the student aiming at a qualified position in technical and economic planning.

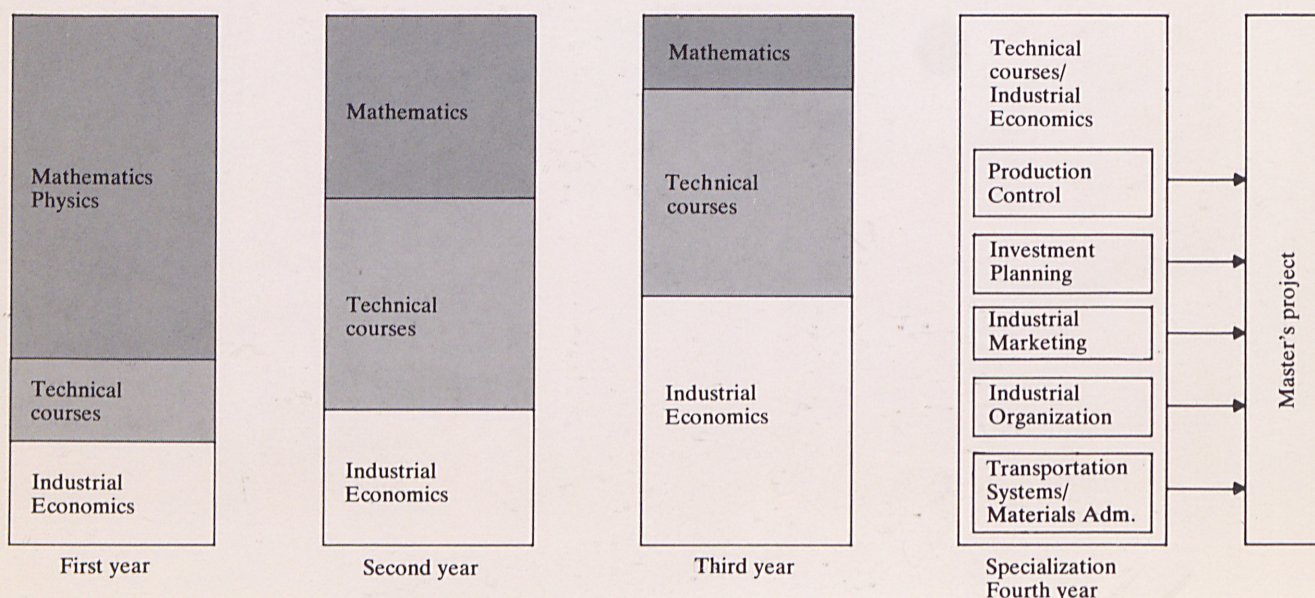
Industrial Marketing. This program is primarily intended for those seeking positions of responsibility within a company's marketing department. Compulsory courses in International Marketing, International Business and either German or French, in conjunction with practical work abroad, reflect the development of business interests and organizations across international boundaries.

Industrial Organization. This program covers the analysis of companies operating as technical and social systems. Teaching is planned so that case studies as well as the student's own studies of company organization are combined with specialized training in analyzing and solving complex problems in this field.

Transportation Systems/Materials Administration. Transportation and materials handling are becoming increasingly important factors in company development and profitability. The industrial and business world is showing great interest in new techniques for modernizing transport and material flow. Teaching is designed to give a complete picture of the flow between the raw materials supplier and the final consumer.

The curriculum throughout the four years combines technology and industrial economics. The graduate will therefore have the advantage of a wide horizon in his work through an insight into a far greater variety of problems.

Industrial Management Engineering



Computer Systems Technology

The significance of computers and data processing in the development of society is increasing rapidly. There is a growing desire to reduce both the burden of manual work and the monotony of routine information processing. The great demand for education in this field led to the creation in 1975 of the school of Computer Systems Technology at LiTH.

The educational program in Computer Systems Technology has been designed in close cooperation with the industrial and business world. One of its features is that it combines studies in both hardware and software, the basic divisions of Computer Systems Technology.

Hardware is the collective name for the electrical and electronic components, circuits and signal paths which make up a computer.

Software is the general name for the ordered set of instructions or commands required to control the computer's operation. Computer Systems Technology aims at designing hardware and software so that the computer becomes easily applicable to problems of information processing.

The curriculum in Computer Systems Technology contains several project courses. This means that students can work fairly independently in designing equipment and programs for solving problems of average difficulty. Computer systems are based on well-defined building blocks and are especially suitable for this type of active study. In software these blocks consist of programming language instructions and in hardware of digital components such as gates, bistable circuits, counters, registers and memories.

The diagram below shows the Computer Systems Technology curriculum.

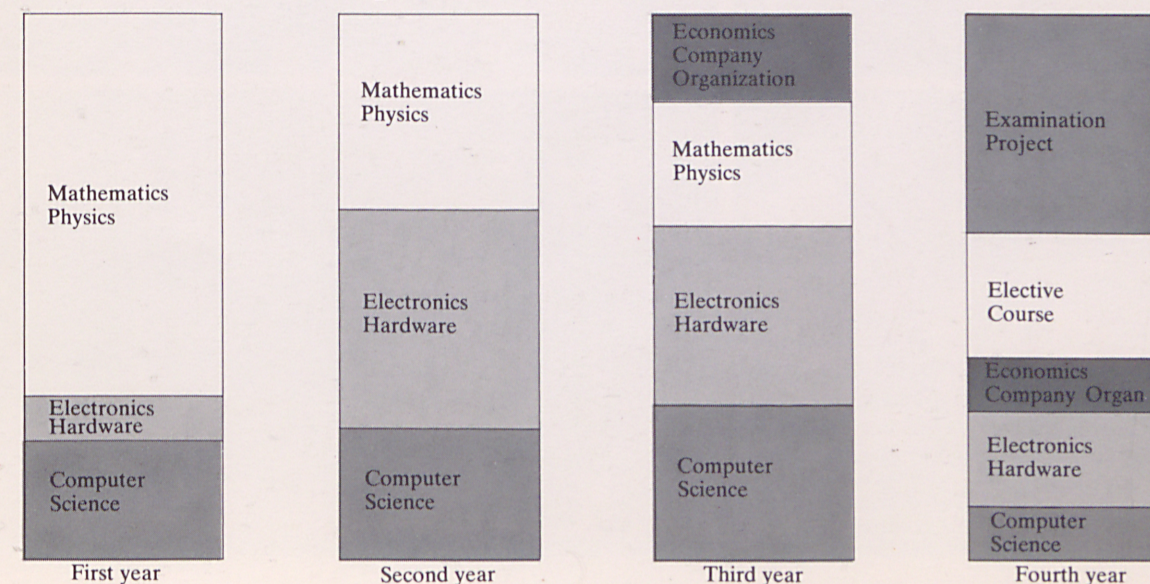
Mathematics and Physics dominate the first year since it is vital for the student to have sound basic knowledge of the natural sciences. Modern mathematical topics such as Numerical Analysis, Mathematical Statistics and Optimization are also introduced.

Software Design is essential if a computer is to be used in calculation, data storage and communication. Education is provided in analyzing problems, choosing solutions and writing computer programs for complex systems such as those used in ticket reservations, language translation, production control and equation solving. Courses in software design are given every year and cover a number of different areas.

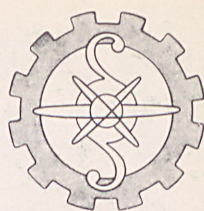
Electronics and Hardware involves components and structures used in various types of electronic devices relating to computers. Education is analogous to that in software and includes problem analysis and design, construction and testing of various devices.

Economics and Company Organization is introduced in the third and fourth years. Students examine company structure and the role of the employee. An elective course allows the student to specialize in an area where Computer Systems Technology has extensive applications such as in production engineering or medicine. An examination project concludes all four-year courses and requires about three months of independent work.

Computer Systems Technology



Linköping Technology Students' Union



If you are going to make a success of your work at LiTH, you will need to study about 50 hours each week. In addition you will have to sleep about 56 hours. That leaves 62 hours at your disposal, during which you can eat, travel, go to the movies, dance, sing, romance, get in a fight or live it up – whatever you want.

But what has this got to do with the Students' Union?

Well, like most other universities and colleges, LiTH offers a whole range of leisure activities.

Dozens of clubs and societies cover most popular interests. Some show films, others build electronic equipment. One group programs its own computers while another enjoys a folk dance session. Yet others operate radio transmitters or specialize in high quality photography. Debating societies solve world problems and new clubs are formed to cater for new interests. Parties are held in rapid succession. And then of course there are all the movie theaters, dances, societies and entertainment in Linköping itself.

Linköping Technology Students' Union has a total of some 2000 members. We call it LinTek for short.

The main aim of LinTek is to look after the interests of students during their stay at the Institute. If things aren't working the way they should, then it's LinTek's job to use its various channels to make sure that any difficulties are put right. Besides keeping a watchful eye on education, LinTek also has a say in the student's general conditions such as accommodation, health, study loans, entertainment, information and many other everyday matters.

LinTek is made up of students working for students. We know the sort of problems that occur. We know how to tackle problems. And we know which solutions don't work. We approach problems the way we believe they should be approached and we enjoy solving them. We also have a good time even when there aren't any problems to solve.

When the time comes for you to start thinking about higher technical education, we should be very happy to hear from you. If you should like to come here for a talk, either alone or with your friends, just let us know. We are always ready to meet you and show you around.



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