The Role of Technical and Vocational Education in the Swedish Education System.

In Sweden, technical and vocational education is totally integrated into the national school system and cannot be taken out and examined completely on its own. Internationalization, the revolution in information and communications systems, and rapid and sometimes stunning technological change have influenced all groups, levels, and aspects of Swedish society. These three major factors are very important in the reasoning behind the creation and implementation of a successful education system, of which technical and vocational education is a fundamental element. Today, Swedish education is in a state of transition. A major reform, the Upper Secondary School Reform 1992, has had an impact on all aspects of technical and vocational education. One of the essential ambitions of the reform is the implementation of the concept of "lifelong learning." Four groups are given particular support to improve their participation in national education: females, immigrants, mentally handicapped individuals, and physically handicapped. The Swedish education system is supported by government subsidies and municipal funding. Entrepreneurial orientation in technical and vocational education is much better emphasized under the Reform. Several private industries have taken their own initiative and set up different forms of cooperation with the upper secondary schools to ensure relevant technical and vocational education. (Appendixes contain 19 references, fact sheets on 16 national programs, and vehicle program specification.) (YLB)
The Role of Technical and Vocational Education in the Swedish Education System
The International Project on Technical and Vocational Education (UNEVOC) is a project of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Its purpose is to contribute to the development and improvement of technical and vocational education in Member States.

UNEVOC works in three programme areas.

Programme Area A deals with the international exchange of experience and the promotion of studies on policy issues. It is devoted to system development in technical and vocational education.

Programme Area B is devoted to strengthening national research and development capabilities, that is to the development of infrastructures.

Programme Area C concerns access to data bases and documentation in its broadest sense, in other words, with information and communication.

The basic concept behind Programme Area A is to enhance the role and status of technical and vocational education within national education systems.

UNESCO held a consultation in 1993 with experts from different regions of the world in order to identify some of the factors which determine role and status of technical and vocational education. Based on the findings, a series of case studies has been initiated on the relevance of these factors within given national education systems.

The present study on "The Role of Technical and Vocational Education in the Swedish Education System" has been prepared in this context.

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Summary

In Sweden, technical and vocational education is totally integrated into the national school system and as such cannot be taken out and examined completely on its own. Labour market policy and education policy often go hand in hand but must not be seen as interchangeable. Technical and vocational education has the complex task of combining flexibility to solve difficult problems of different levels of urgency, at worst in a labour market changing month-by-month, as well as being an integral part of the country's education policy that must have long-range vision and strategies for maintaining and improving a country's wealth. Here, the term wealth refers to something much more than simply the concept of what can be measured in terms of material possessions.

Internationalization, the revolution in information and communications systems, and rapid and sometimes stunning technological change have influenced all groups, levels and aspects of Swedish society. Consequently, these three major factors are of the utmost importance in the reasoning behind the creation and implementation of a successful educational system, of which technical and vocational education is a fundamental element. At the beginning of the 90s, Sweden's position was weakened since its labour force was not as well educated as that of other industrial nations in the West.

Today, in 1994, Swedish education and especially technical and vocational education, is in a state of transition. A major reform was initiated in 1992, the Upper Secondary School Reform 1992. By the school year 1995/96, students will be admitted only to the new national programmes as specified by this reform. The effects of this reform are far-reaching in that the Reform impacts all aspects of technical and vocational education and in municipal adult education as well as some important aspects of university education and application requirements. The Reform also stipulates a new system of marks and a new curriculum, in effect beginning with the autumn 1994 term. The Upper Secondary School Reform 1992 is the most extensive of this century in Sweden. It has been worked out in order to guarantee the individual's right to freedom of choice as well as to meet society's demand for a school that can adapt to rapidly changing external conditions in the near society and in the global society.

One of the essential ambitions of the Reform is the implementation of the concept of lifelong learning. Education must give people the necessary competence and self-confidence, providing the individual with the foundations to see change not as a threat but as a potential opportunity. Multi-faceted knowledge is necessary especially in times of dramatic and profound changes. The speed and extent of developments in traditional technology and information/communication technology today make knowledge a kind of perishable goods, that must be constantly renewed and kept fresh. This means that education, be it theoretical or vocational, must not be seen as a finite product, but as a life-long process of learning. In this respect, formal education must not only provide the student with certain skills and knowledge but also the key tools for renewing skills and supplementing knowledge throughout an entire lifetime.

The main strategies of the Upper Secondary School Reform 1992 are:

1. decentralizing education authority and decision-making power
2. increasing local freedom in the allocation of funds for education
3. realizing a smoother transition from youth upper secondary education to municipal adult education
4. creating a more course-oriented upper secondary education structure
5. raising the status of technical and vocational education to the same level as general/theoretical upper secondary education

Traditionally and also under this Reform, four groups are given particular support in order to improve their participation in national education, especially also the opportunities offered by technical and vocational education: Girls, immigrants, the mentally handicapped and the physically handicapped.

Concerning the financing of technical and vocational education, the Swedish education system is supported by government subsidies and municipal funding. Costs are not broken down into areas such as technical and vocational education or general/theoretical studies. The total expenses for
the upper secondary school were approximately 17.4 thousand million SEK in 1992, of which half may be expected to have been used for technical and vocational education. In 1992, expenses for municipal adult education were approximately 2.5 thousand million SEK, of which only a minor part may be expected to have been used for technical and vocational education.

Entrepreneurial orientation in technical and vocational education is much better emphasized under the Reform. The study of basic business economics is now included in fifteen of the sixteen national programmes. In addition, the study of Business Economics for Small Businesses is offered in eight national programmes. During the past years of recession and privatisation, there has been more support for a broader small business sector in Swedish society. A form of "vocational" education available now to adult students is seen in the "Starting Your Own Business". This, combined with the raised status of vocational education, is expected to lead to an increase in the number and status of small businesses in Swedish society.

Several private industries have taken their own initiative and set up different forms of cooperation with the upper secondary schools in order to ensure relevant technical and vocational education. These initiatives also include efforts to de-dramatize technology in the elementary school in order to encourage elementary school pupils to study technical and vocational education programmes in the future.

Regarding teacher training and supplementary teacher training, the Reform stipulates that, in addition to the specific knowledge and skills relevant to the subject taught, the teacher's responsibility includes other non-traditional teaching responsibilities. These responsibilities are meant to promote an atmosphere of democracy and personal responsibility in the classroom. The new responsibilities, in their orientation and gravity, lead to a serious need for supplementary training for teachers. This need is also based on the increased demands on the professional knowledge each teacher possesses, knowledge that must be constantly updated in order to stay in touch with both local and global events that have an impact on the subject taught. The need to cooperate with other teachers applies especially to teachers in technical and vocational education who must coordinate their students' education in the school with training at different commercial/industrial companies, due to the requirement that 15% of vocational studies must be carried out at a relevant workplace. The format and content of supplementary training for teachers may be asserted as one of the most important questions in education today, for teachers of both general/theoretical subjects and vocationally oriented subjects.

This case study is thus a report on an educational system in transition, due to the introduction of the most important school reform in Sweden in this century. Students of technical and vocational education are expected to benefit greatly from the Reform, as it is oriented towards raising the status of technical and vocational education. It is also oriented towards the maintenance of a democratic society in which all members of society have access to educational opportunities that promote life-long learning.
1 Introduction and Brief History of Technical and Vocational Education

In Sweden, technical and vocational education is totally integrated into the national school system and as such cannot be taken out and examined completely on its own. Labour market policy and education policy often go hand in hand but must not be seen as interchangeable. Technical and vocational education has the complex task of combining flexibility to solve difficult problems at different levels of urgency, and worst of all, in a labour market changing month-by-month, as well as being an integral part of the country's education policy that must have long-range vision and strategies for maintaining and improving a country's wealth. Here, the term wealth refers to something much more than simply the concept of what can be measured in terms of material possessions.

100 years ago, Sweden was one of Europe's poorest agricultural countries, struggling with the problems facing a society based on class differences, poverty, little educational opportunity except for the privileged, and extensive emigration. Apprenticeship training was always entirely located in, and the responsibility of the workplace. Any theoretical studies were carried out in evening classes, to the extent that these were available.

75 years ago, in the recession after the First World War, industry renounced this expensive responsibility of taking on apprentices and the school system took over much of the practical training in daytime classes. This lead to municipal responsibility for education in industry and trade.

50 years ago, Sweden was on the verge of erasing many class differences, emigration had been stemmed and educational opportunity had definitely reached into the sphere of vocational educational opportunity. After the Second World War, labour market education became a new factor in the education system and a matter of concern for the national school system. Thus, the national school system accepted the civic responsibility for traditional education, vocational education, apprenticeship training and training for unemployed persons. Vocational education was based on specific manual skills with little consideration of learning to solve problems, make choices or take the initiative. Students waited until a relatively late age to make vocational choices; however, this must be seen against the background of depression that made vocational choices almost a matter of survival. The Second World War also affected vocational choices, especially for women who, after training and some years' professional experience, were often forced into the ranks of the unemployed when the war was over.

25 years ago, in the expanding economy of the 70s, university studies were a realistic goal for many students whose parents had never dreamed of this. The Upper Secondary School Reform of 1971, based on the 1970 Curriculum for the Upper Secondary Schools (known in Swedish as Lgy 70) united the existing schools for voluntary education (university preparatory upper secondary school, vocational school and technical school) into one upper secondary school with one administration. However, technical and vocational education, though officially integrated, widely available, covering many vocational fields and providing skills in Swedish and English, was still limited in its vision of preparing these technical/vocational students for specialist areas only. At this time only a few unusual professions maintained responsibility for apprenticeship training. The reform work of the 60s, that envisioned a more generally oriented technical and vocational education, was mostly ignored; and machining techniques came to dominate the training in industrial education courses (e.g. workshop, electrical/telephone, and vehicle technology courses). Education was chiefly tailored according to the estimated labour market needs. Interesting to note here are some of the training goals as stated in the official report SOU 1966:3 - almost 30 years ago:

1. cooperate with others at the workplace
2. plan the work rationally
3. make decisions regarding different action plan alternatives

These appear also in updated form in the reform now in progress in the 1990s.

Over the last 10 years, vocational education on-site in industry has lost even more ground to practical training in the schools, while at the same time vocational education has had to respond to dramatic changes in the organization of the labour market, demands for more highly qualified personnel and the need for much closer ties with
industry; in order to guarantee the continued development of Sweden as an industrial nation. During the last ten years, young people have been hesitant to apply to the vocational education programmes in the technical and industrial sectors. This is partly due to poor general knowledge among youths of what it's like to work in a modern industry and also due to poor interaction between industry, the schools and general society. Another factor here is the appearance of groups in the labour market that traditional vocational education has not been able to cope with, i.e. first and second generation immigrant children and the handicapped.

This brief history is superficial at best, but three important aspects emerge:

1. Technical and vocational education has been definitely acknowledged as an integral part of the education system, in youth schools and adult schools.

2. Changes in technical and vocational education have been based on

   a) assuring Sweden's place as an industrial nation and

   b) the extent of unemployment in general and youth unemployment in particular.

   Teaching materials have not been able to respond to the officially stated goals and intent of technical and vocational education.

3. In the past, recessions have led to narrower horizons for technical and vocational education, with training based on more specific vocational skills, and the expectation or existence of a good economy has led to broader horizons and more general goals for technical and vocational education in order to facilitate geographical movement and vocational freedom.

The national curriculum reforms since 1960

1994 Lpf 1994 - Läroplan för frivilliga skolformer 1994. The term "non-compulsory schools" refers to all forms of schooling beyond the mandatory 9-year secondary schooling in Sweden, i.e. upper secondary, post-upper secondary, etc.

2 Present Situation - Period of Transition

Internationalization, the revolution in information and communications systems, and rapid and sometimes stunning technological change have influenced all groups, levels and aspects of Swedish society. Consequently, these three major factors are of the utmost importance in the reasoning behind the creation and implementation of a successful educational system - of which technical and vocational education is a fundamental element - a system that is vital to maintaining and increasing the standard of living of the entire society. At the beginning of the 90s, Sweden's position was weakened because its labour force was not as well educated as that of other industrial nations in the West.

In the 90s, historical trends seem to have a reverse application - the facilitation of geographical movement and vocational freedom is now seen as a means to ameliorate today's very serious labour market situation in which very few make predictions about the future, and many unemployed and especially youth unemployed have bleak prospects of finding a job. At the same time, industry and trade are looking for persons who have considerably more talent than pure technical/vocational skills; instead promoting and rewarding those with traditionally humanistic skills, e.g. in foreign languages, communication, economy, and general computer science. The present situation has been considered to be partly due to the failure of central planning.

Today, in 1994, Swedish education and especially technical and vocational education, is in a state of transition. A major reform was initiated in 1992, the Upper Secondary School Reform 1992. By the school year 1995/96, students will be admitted only to the new national programmes as specified
by this reform. The effects of this reform are far-reaching in that the Reform impacts all aspects of technical and vocational education and general/theoretical education in youth upper secondary education and in municipal adult education as well as some important aspects of university application requirements and education. The Reform also stipulates a new system of marks and a new curriculum, in effect from the autumn 1994 term. The Upper Secondary School Reform 1992 is the most extensive of this century. It has been worked out in order to guarantee the individual's right to freedom of choice as well as to meet society's demand for a school that can adapt to rapidly changing external conditions in the near society and in the global society.

One of the essential ambitions of the Reform is the implementation of the concept of lifelong learning. Education must give people the necessary competence and self-confidence, providing the individual with the foundations to see change not as a threat but as a potential opportunity. Multifaceted knowledge is necessary especially in the face of dramatic and profound changes. The speed and extent of developments in traditional technology and information/communication technology going on today, make knowledge a kind of perishable goods, that must be constantly renewed and kept fresh. This means that education, be it theoretical or vocational, must not be seen as a finite product, but as a life-long process of learning. In this respect, formal education must not only provide the student with certain skills and knowledge but also the key tools for renewing skills and supplementing knowledge throughout an entire lifetime.

The main strategies of the Upper Secondary School Reform 1992 are:

1) Decentralizing education authority and decision-making power
This has been effected by dissolving the National Board of Education and the 24 county education committees as well as the Swedish Institute for Teaching Materials. Instead, Sweden now has the National Agency for Education responsible for the three main tasks of assessment, follow-up, and supervision. A great amount of authority has thus been placed in the hands of local boards with extensive decision-making responsibility for the municipalities and in the hands of the schools themselves.

2) Increasing local freedom in the allocation of funds for education
(See Section "Financial Resources and Financing", page 13.)

3) Realizing a smoother transition from youth upper secondary education to municipal adult education
In the Reform, the same curriculum will apply to both upper secondary education and municipal adult education. This means a structural integration of the two types of education, and that the artificial division of studies into "years" will be replaced by a course-oriented structure of studies within the framework of the national programmes. (See also point 4 immediate following for further discussion.)

4) Creating a more course-oriented upper secondary education structure
The intent of the Reform is "course-oriented" upper secondary education within the framework of the national programmes, which means that after the Reform has been completely implemented, each and every student will have the chance to compose his/her "own" programme, although most students are expected to follow the national programmes as they have been set up today. The course-oriented structure means improvement in several aspects of especial importance to students in technical and vocational education:

a) Easier to combine general/theoretical subjects with vocational subjects
b) Greater opportunities for each individual student to direct his/her own studies based on his/her own needs and desires
c) Greater opportunities for each municipality to influence the education offered in the region.
d) Students can complete their studies in a shorter or longer period than the normal three years. Each student enters at his/her own level of knowledge and exits after achieving his/her goals.
e) The syllabus for each course includes a clear description of the knowledge and skills the student is to achieve

5) Raising the status of vocational education to the same level as general/theoretical upper secondary education

Strategies to raise the status of technical and vocational education are:
a) More closely integrating vocational education into the normal upper secondary school and increasing the extent of compulsory general subjects - "core subjects" - for students in vocational education
b) Making all education programmes, including the vocational programmes, three years in length
c) Introducing a new form of "workplace-related" education
d) Revising the assessment of qualifications

These are described more fully in the following discussion:

a) More closely integrating vocational education into the regular upper secondary school and increasing the extent of compulsory general subjects - "core subjects" - for students in vocational education.

Now all students in programmes of technical and vocational education study the following core subjects in common with those students aiming for university entrance: Swedish, English, Mathematics, Civics, Religion, Sports & Health, Arts Activities and General Science. (Note: In mu-
nicipal adult education, the core subjects Sports & Health and Arts Activities are eliminated.) The concept of a block of core subjects not only contributes to raising the status of graduates of vocational programmes, it also provides a solid basis for further education at the upper secondary and post-secondary adult education level and at the university/university college level. Even more importantly, it contributes to achieving the general goal of Swedish education identified as lifelong learning (see also above in Section "Present Situation - Period of Transition" regarding lifelong learning, page 7).

b) Making all education programmes, including the vocational programmes, three years in length. This is an important step away from the old system where many vocational "lines" were only two years in length.

National timetables for these programmes state the guaranteed minimum time for instruction by teacher or supervisor.

Table 1 (page 8) shows a list of the fourteen national vocational programmes and branches offered in youth and adult education, followed by the two general/theoretical programmes.

The latter concentrates on general science and technological theory and prepares the student for further studies to become a graduate engineer, or to participate in research programmes.

It is important to note that the sixteen national programmes are not static, since municipalities now have the authority to create other branches to satisfy local and regional needs. These are usually related to vocational opportunities in the region, such as the quarry industry, local tourism, the textile industry, etc.

One of the most far-reaching results of the Reform is that all of the sixteen national programmes provide the student with general eligibility to continue his/her studies at the post-secondary or university level, whereas in the old system students in the technical and vocational education lines often had to supplement their education before becoming eligible for further studies.

The sixteen national programmes are not the only programmes available to students. The Reform, as well as implementing the concept of freedom of choice to a much greater extent than before leads to the possibility of both specially-designed programmes and individual programmes.

Specially-designed programmes are those that mainly parallel a national programme but study specific subjects more deeply or with another orientation than the national programme. This type of programme is always three years in length, and is mainly intended for extremely goal-oriented students interested in a specifically composed programme to meet the individual requirements of certain vocational or theoretical professions, requirements that may not be covered by the national programmes. The student can combine theoretical and vocational subjects from any of the national programmes, however, the core subjects and a special project are compulsory components.

Individual programmes enable an individual to compose a programme that more suits his/her specific needs. Most individual programmes are compensatory one-year programmes aimed at preparing the individual to enter a national programme after completion. A small percentage are motivational programmes that seek to counsel and encourage unmotivated students (and students who have dropped out) to choose and complete an existing national programme. Individual programmes can also be programmes for students interested in unusual occupations not covered in the national programmes, or for students who live very far away from the school offering the desired programme. The opportunity to create individual programmes is also oriented toward immigrant youths (and immigrant adults in adult education) to enable them to study Swedish and English more intensively, possibly combined with e.g. guidance in their own language.

A special variant of the individual programme is the Apprenticeship Training programme. This programme is always three years in length. It combines vocational training at a company in the form of employment, with studies. The studies must include the core subjects. Apprenticeship training is intended for students who are highly motivated to learn a vocation but much less motivated to study theoretical subjects.

In statistics based on upper secondary education in October 1992, the first year after the Reform was instituted, approximately 25% of those students
studying in the reformed upper secondary school followed individual programmes. This should be seen in relation to the very initial character of such statistics and the fact that implementation of the Reform is still in the transitional stages. The figure 25% shows the necessity of flexible programmes in today's education, but this figure is expected to drop to around 5% when the Reform is in full effect by the turn of the century.

As mentioned above, when the course-oriented structure is fully introduced, every student will in effect have the possibility to create his/her own individual programme.

Interesting to note here is that the number of boys and girls studying individual programmes was rather evenly distributed in the age group 16-17 year olds, but that girls dominated in the age group 18-20 year olds (pg 41, Beskrivande data om skolverksamheten - 1993).

Again, in all such specially-designed and individual programmes, the core subjects must be given a share equivalent to the established national programmes.

c) Introducing a new form of “workplace-related” education.

The school and the company where the training takes place now cooperate much more closely, with the company taking the main responsibility for the student's time and training within the company. At least 15% of the total study time in the programmes in technical and vocational education is to be assigned to the workplace.

The main idea behind this new form of workplace-related training is the belief that this alternating responsibility for the student will achieve the best possible use of the student's time in school and in the company. This ensures higher quality education due to three important results:

- the integration of general knowledge and specific vocational theory provided in a suitable pedagogical context with guaranteed up-to-date technological methods and equipment,
- closer links between the schools and industry, assuring a continuing dialogue regarding industry needs, qualifications and skills, and an easier transition from school life to working life for the student, allowing the student to smoothly acquire the social competence necessary in working life.
- Compliance for apprenticeship training and workplace-related training: The compensation received by the companies for apprenticeship training and workplace-related training is under discussion at this time. Normally, each company receives a subsidy from the municipality to offset company costs for making supervisors and facilities available. Although the student's tasks during his/her apprenticeship or workplace-related training must preserve the status of the student purely as a student, the student receives a "salary" as an extra incentive, the amount of which is determined in accordance with the prevailing agreements between the national employee association and the national trade unions.

d) Revising the assessment of qualifications

There will be a new system of goal-related marks in effect as of July 1, 1994. The old system of relative marks was based on a 5-point scale (5 as excellent, 3 as average, 1 as inferior). After the reform has taken full effect, upper secondary schools will award marks according to a 4-point scale: Passed With High Distinction, Passed With Distinction, Passed, and Not Passed. The new goal-related marks are expected to provide a clearer indication of how successful student has been.

Discussions are going on right now about the value and significance in technical and vocational education of a supervisor's certificate as a form of evaluation of the 15% of vocational education that is assigned to the workplace. Character judgements such as diligence, industry, and personal suitability could be included, however, it must be emphasized that there are no official recommendations or directives at this time on this matter.

3 Future Developments

The following are developments that technical and vocational education in Sweden must take into consideration.

Professional skills will need to be broadened and applied in new ways.

Social skills will be necessary to cooperate and communicate effectively with various persons at various levels in company organisation. This also places more emphasis on foreign languages and cross-cultural knowledge as international contacts become more and more frequent.
Greater demands will be placed on personal skills and flexibility.

Working in groups will become more usual as traditional hierarchies are replaced by cross-departmental resource groups.

New technologies will demand a new type of manager and a new type of subordinate. In fact the word "subordinate" will be replaced more and more by "colleague" as people learn to respect each other's competence and contributions.

Individuals will expect and demand challenge and opportunities for personal growth in their work, at all levels.

4 Adult Education

Adult education is not to be confused with higher education. The origins of adult education in Sweden lie in providing an inexpensive (usually free) opportunity to improve vocational skills in an informal but serious setting, that also encouraged social intercourse. This has developed in different directions, extending also now to formal education administered by the state and, mainly, the municipalities.

Almost 50% of Sweden's adult population is enrolled in some form of adult education. This high rate is due in part to long traditions in educational opportunity for adults and in part to the great variety of adult education institutions.

In the Reform, the state and municipalities must offer education to all youths up to 20 years of age. After this age, a person must procure his/her further education through one of the following types of adult education, or through university or university college education:

- Adult Study Associations
- Folk High Schools
- Government Labour Market Education
- In-Company Training
- Training sponsored by Employee Organizations
- Radio, TV and Correspondence Courses
- National Schools for Adults (two in Sweden)
- Swedish for Immigrants Education
- Public Libraries and Audio-visual Centres
- Municipal Adult Education.

Recent figures state that approximately 160,000 persons are enrolled in Municipal Adult Education, of which 100,000 are women. 45% of the enrolled students study subjects at the compulsory school level, 30% study at the upper secondary level, and 25% study technical/vocational education courses. The percentage of technical and vocational education will increase since municipal adult education is now used as a tool in labour market policy.

A new dimension has been added over the last decade to municipal adult education. Municipalities can now sell courses to "customers" among industry, banks and other commercial units, government authorities, etc., on a contract basis. The volume of these contracted courses, also known as commissioned courses, was in 1993 around 20% of the total municipal education offered. This type of education will have a great impact on technical and vocational education since it promotes closer cooperation between industry, upper secondary education and post-secondary education.

Another new type of education potential utilized in municipal adult education and in youth upper secondary schools is that represented by so-called local courses. The Reform not only provides extensive local freedom in the allocation of funds (see Section "Teacher Certification and Supplementary Training", page 14 regarding this) but also in the creation of courses outside the national programmes. This is very advantageous for developing technical and vocational education, not only in fulfilling regional demands for vocational skills, but also in enabling hitherto unusual combinations of educational subject and target group, i.e. to tailor-make courses for technical-vocational groups, e.g. communication for engineers, marketing for food-stuffs industry professionals, etc. These courses can be tailored to meet local industrial needs at many different levels.

Especially in times of recession, such as Sweden has recently experienced and which probably is not over yet, commissioned courses and local courses have been able to quickly meet the swiftly changing demands not only of the labour market itself but also of the labour market exchanges seeking courses to train/retrain large numbers of unemployed. Here is where technical and vocational education in the adult education system has
been most effective. This means that local courses have become a powerful tool to keep up with regional and local demands.

In the past, the intent of municipal adult education has been two-fold, compensatory in that it has provided the opportunity to many adults to fill in the gaps in their compulsory education that could exist for a variety of reasons, and supplementary in that it has provided adults with the opportunity to augment and strengthen their basic skills and competence in order to achieve better jobs and better lives.

Today's Reform means that adult education is considered not only to be a second chance for many to compensate and supplement their original education as youths, but also as a bridge between upper secondary education and university/university college education, and increasingly as a fertile area in itself for different initiatives/avenues in post-secondary education. This will allow exploitation of the possibilities offered not only by commissioned education, but also traditional formal education. Again, students in technical and vocational education are expected to reap great benefits from the developments in this intermediate level between the upper secondary and university/university college levels. The curriculum, syllabi, teaching materials, and assessment criteria are in transition here, too.

New tools in adult education and university education include three new strategies specified in the Reform, to be implemented over a period of time. These strategies are deemed valuable not only in the short run for increasing competence in today's labour market situation, but also in the long run in contributing to structural change in the system. Thus they combine education policy and labour market policy by solving contemporary problems on the labour market while at the same time being instruments of the education system for achieving and maintaining a high standard of living.

The three strategies are:

1) Educational Vouchers
This strategy is seen as promoting diversity and giving the individual with complete freedom in choosing an educational institution (e.g. company offering education, education association, university, municipal adult education school, etc.) The voucher must however be used for education in an area that will increase the individual's competence and prospects on the labour market, e.g. foreign language training.

2) Post-secondary Trainee Education
This is a particularly significant strategy for medium-sized and small companies. It is a form of apprenticeship training, but intended for education at the post-secondary level. It combines advanced theoretical training at universities or municipal adult education schools, with on-site training at the chosen company or a combination of companies. This type of training previously was only available in large companies.

This strategy, since it is oriented toward small and medium-sized companies may be seen also as an effort to alleviate one of the effects of the reformed technical and vocational education that could be seen as a disadvantage for small and medium-sized companies, namely that students graduating from the national vocational programmes will be less specialized than before - they will be more generally competent in the chosen vocation, but with more emphasis on competence in social and problem-solving skills.

3) Summer Courses at Universities and Municipal Adult Education Schools
Sweden has lagged behind other countries in fully utilizing its higher education resources year-round. Funding for this as well as revised study assistance programmes will enable the development of a complete curriculum available in the summer at different educational institutions.

5 Improving Participation of Special Social Groups

Four groups are given particular support in order to improve their participation in national education, and particularly the opportunities offered by technical and vocational education: Girls, immigrants, the mentally handicapped and the physically handicapped.

In the 1980s, special efforts were made to help girls apply to male-dominated vocations and boys to apply to female-dominated vocations. If education courses the year before had less than 30% of the under-represented sex, then individuals from this under-represented group received extra...
eligibility points on applying to school. This measure, however, did not seem to improve the situation, and today it is thought to foster inequality and has been withdrawn. Now, individuals can apply under the free quota system, which means that they can cite certain priorities, e.g. medical disability, long vocational experience, incomplete basic schooling, etc., anything that the individual can prove as being special for him/her. Technical and vocational education is not given any special status in application procedures. The national programmes and branches are intended to attract both girls and boys. Evaluations at the end of the transition period and in the first years of implementation of the Reform will show whether or not this strategy is useful.

Several measures must be mentioned in this context:

a) frequent information campaigns are carried out to encourage individuals from the under-represented groups to apply to relevant vocational education programmes

b) unemployed persons are sometimes offered opportunities to complete local, specially-oriented courses that are meant to inform and enthuse an under-represented group about vocations seldom considered in that specific group.

Girls are not specifically targeted in the above two measures. However, as technology advances into our daily personal and working lives, girls are an obvious direct target group for these two measures. Girls and traditionally female vocations are also an indirect target of these measures due to the fact that as men enter female-dominated vocations, they usually bring about a general increase in status and salary for that vocation. Many persons would today assert that an interesting side effect of the presence of more women in male-dominated vocations is the acceleration of the fulfilment of the demands for more personal and communication skills in the workplace that technical and vocational education must take into consideration (see Section "Future Developments", page 10).

c) summer courses in general science and technology are sometimes offered for girls in the secondary schools (13-16 years old). This is up to the individual municipalities. Government subsidies are available for these summer courses as well as for other efforts during the school summer holiday to encourage girls to be interested in these fields (SKOLFS 1994:4).

d) Women in regions where there is extensive unemployment or outdated industries are offered help in the form of special courses or financial aid to open their own businesses, based on business ideas that will promote the region. (See also Section "Entrepreneurial Orientation and Technical and Vocational Education", page 16, regarding entrepreneurial-oriented vocational education strategies for "Starting Your Own Business").

e) For handicapped persons, a national agency has now been established to work on questions concerning education and teaching materials for the mentally handicapped - the National Swedish Agency for Special Education. The programmes are the same for youths and adults as in the regular school programmes. The basic goals for technical and vocational education for the mentally handicapped are to improve an individual's self-confidence and increase his/her potential to influence the daily activities of his/her life. The physically handicapped are relatively well cared for in Sweden. In southern Sweden, there are several institutions, for example, a school for adults with serious physical handicaps that is scheduled to become a Folk High School and as such will not only be able to participate in but also offer graduation certificates in the national education programmes.

In addition, there are several national upper secondary schools for the handicapped, each one integrated with a regular upper secondary school in the region.

6 Financial Resources and Financing

Each Municipality receives a subsidy from the State for use in financing its school activities. This subsidy is not ear-marked for schools but is part of a larger total amount granted to the Municipality according to certain principles. It is then up to the Municipality to decide how much will be allocated to different municipal activities, e.g. for technical/vocational education. The State only demands that the Municipality fulfil the
educational goals set by the State. The Munici-
pality has, however, extensive freedom in the 
organization of its school activities. Through con-
tinuous evaluation by the National Agency for 
Education, the State can verify that the 
Municipality is fulfilling the goals.

Every Municipality is responsible for offering 
upper secondary education based on a compre-

hensive selection from the national programmes 
for all youths in the Municipality aged 16-19. 
Great consideration must be given to the requests 
and choices of the youths of the Municipality. It is 
also up to the Municipality whether or not all of 
the vocational and technical programmes will be 
offered, or if the courses in certain programmes 
will be "bought" in a neighbouring Municipality.

The subsidy from the State is not intended to cover 
all expenses for education in the Municipality. The Municipality is expected to be responsible for 
approximately 50% of these expenses. Examples 
of expenses that are considered to be the respon-
sibility of the Municipality have traditionally been 
the expenses for buildings, equipment, and teach-
ing materials.

Expenses are not broken down into cost areas such 
as technical and vocational education or general-
theoretical studies. The total expenses for the 
upper secondary school were approximately 17.4 
thousand million SEK in 1992, of which half may 
be expected to have been used for technical and 
vocational education. In 1992 expenses for 
municipal adult education were approximately 2.5 
thousand million SEK, of which only a minor part 
may be expected to have been used for technical 
and vocational education.

As mentioned above, in municipal adult education, 
commissioned courses have become a valuable 
tool in labour market strategy. These courses are 
paid for totally by the commissioning customer, 
although premises and equipment may be shared 
with regular municipal adult education.

7 Teacher Certification and 
Supplementary Training

In order to be permanently employed as a teacher, 
the applicant must:

- possess the necessary insights into the regu- 
lations concerning public schooling and especially the goals for the relevant education
- have successfully completed the Swedish 
teacher certification programme oriented 
primarily towards that type of education for 
which the employment is intended (or a 
programme in another country that is adjudged 
equivalent).

Education leading to the upper secondary school 
teacher certificate, including education for teach-
ers in technical subjects for the Science and Tech-
nology Programme, covers a period of 4-5 years of 
university studies. This education prepares the 
teacher to teach general-theoretical subjects in the 
upper secondary schools and in municipal adult 
education. Each teacher normally is certified to 
teach at least two subjects. Usually, each subject 
has been studied for 1.5 years and these studies are 
combined with 1 year of practical/pedagogical 

studies.

Persons who already have university degrees, for 
example in economics or engineering, can 
complete a teacher training programme of 1 year 
in order to become eligible for certification.

For vocational teachers, the education is shorter 
and is usually equivalent to one year of studies for 
most vocational subjects. In order to be eligible 
for this teacher certification, the applicant must:

- have an upper secondary school certificate
- have at least 4-5 years of professional work 
experience oriented on the intended area of 
certification
- successfully complete the 1st year of university 

studies of pedagogy and methods.

Under the Reform, the curriculum for upper 
secondary education (youth and municipal adult 
education) stipulates that, in addition to the 
specific knowledge and skills relevant to the sub-
ject taught, the teacher's responsibility includes the 
following:

- promote the student's specific knowledge and 
social skills through personal development con-
ferences
- cooperate with other teachers to form a team in 
order to achieve the education goals for the 
students.
• base his/her teaching on the premise that each student can and wants to take personal responsibility for their studies
• make certain that all students receive the chance to influence work methods, work forms and the content of the education
• plan and evaluate the lessons together with the students

The need to cooperate with other teachers applies especially to teachers in technical and vocational education who must coordinate their students' education in the school with training at different commercial/industrial companies.

The above requirements, in their orientation and gravity, lead to a serious need for supplementary training for teachers. The need for in-service training is also based on the increased demands on the professional knowledge each teacher possesses, knowledge that must be constantly updated in order to stay in touch with both local and global events that have an impact on the subject taught. An example of one new area that all teachers must become proficient in and must include in some way in their lessons is that of knowledge of the environment.

The format and content of supplementary training for teachers may be asserted as one of the most important questions in education today, both for teachers of general/theoretical subjects and of vocational subjects. The achievement of tangible developments in professional competence in today's and tomorrow's teachers is of the greatest urgency. The Swedish Parliament has stated that supplementary training should meet three different needs:

• the individual teacher's need for development
• the needs based on specific relationships at a certain school or in a certain municipality
• the needs created by the sixteen national programmes and the national ambition of lifelong learning.

Strategies for teachers in technical and vocational education will include not only the requirement of learning skills to facilitate his/her role as "manager/coordinator" of vocational training but also the requirement of spending periods of time at a relevant workplace in order to keep informed of changes in that vocation.

It is the responsibility of the Headmaster to make sure that the administrative and teaching staff have the competence to perform their tasks in a professional manner. It is the responsibility of each Municipality to make sure that supplementary training is accessible to all teachers and that the training takes place. The National Agency for Education, newly established under the Reform, is responsible for centrally organized supplementary training for teachers.

It was not always the case that the Headmaster or the Municipality has specific responsibilities for in-service training. Centrally organized interest on the part of the State has always been in the areas of the actual teaching and course content, but it was not until the beginning of the 20th century that the State took an interest in Pedagogy, introducing it as a new discipline at the university. This meant that pedagogical research was reserved for specialists outside the classrooms, with the result that teachers became "users" of the results of this research produced by pedagogical experts, and "performers" following a script set by the State. Thus the space for professional development was shrinking and teachers were made obedient state servants.

In the 60s, supplementary training became important to the State, and centrally determined in-service training material was produced, influenced to a large extent by American research. New teaching materials and standardized tests further restricted the already limited professional freedom for teachers.

In the 70s and 80s it was finally recognized that the pedagogy still dominating in the classroom was old-fashioned and should be replaced with more problem-oriented teaching methods. The Reform now in progress thus represents a new strategy in both preparation and implementation of supplementary training; that of putting more responsibility into the hands of the teachers themselves for determining the goals and execution of their own supplementary training. Teachers now have the freedom to observe their practical work, reflect on the outcome, formulate new ideas regarding teaching, and individually seek the training that they perceive to be instrumental in fulfilling the goals and ambitions of the national programmes - in effect, to become professionals. This freedom is available to all
teachers; teachers in technical and vocational education included.

8 Entrepreneurial Orientation and Technical and Vocational Education

In the past, Sweden has not had a strong tradition of individual enthusiasm or government support for small businesses. Assistance such as tax-breaks, professional advice, financial aid from banks, etc., has not been widely available. Moreover, education, especially technical and vocational education, has not taken advantage of the unique possibilities to enthuse young people with the idea that they could start their own business and to prepare them for the economic and organizational realities of such an investment of time and money. In today's economic recession it has become an absolute necessity to help persons with viable business ideas to get the education they need to successfully realize these ideas. Sweden has, however, over the recent decades, become aware of the value of small businessmen to the continued existence of a democratic society, which the Reform takes into serious consideration. Thus, the study of basic business economics is now included in fifteen of the sixteen national programmes (the theoretical Science and Technology Programme does not include any study of economics). In addition, further economics education is offered in the course Business Economics for Small Businesses in seven of the vocational programmes (as well as in the Economics branch of the Social Sciences Programme).

For those who are 20 years or older, i.e. considered to be adults in the education system, the above courses are offered in the regular upper secondary programmes under the auspices of municipal adult education.

"For those adults who have a business idea, there are special courses called "Starting Your Business" which can be combined with a six-month government subsidy for participants who are unemployed. The amount of the subsidy is equivalent to each participant's usual unemployment benefits and is seen as a "salary". In order to receive the subsidy, the aspiring businessman/businesswoman must submit his/her business idea to an assessment panel. Other subsidies and favourable loans are available from the government to defray investment costs involved in starting a business. An advantageous loan programme for 50 million SEK was recently made available to women only.

Starting Your Own Business" courses usually cover a total of 2-3 weeks and are not "vocational" in the sense that they provide skills for a specific vocation. However, they provide the skills necessary to running a small business, such as knowledge of relevant laws, patent application, administration, planning and control, management, analysis, basic accounting, marketing, quality, etc. For those with first-class vocational skills this education is the key to realizing a certain way of life. This strategy has encouraged not only men but also women to take a decisive step in the process of opening their own businesses. It has also been invaluable for opening the door to

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Taught in Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>FE203</td>
<td>Basic Business Economics</td>
<td>• 15 programmes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(all programmes except Science and Technology Programme)</td>
</tr>
<tr>
<td>FE201</td>
<td>Advanced Business Economics</td>
<td>• Business and Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Handicraft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Natural Resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Social Sciences</td>
</tr>
<tr>
<td>FE200</td>
<td>Business Economics for Small Businesses</td>
<td>• Business and Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Foodstuffs</td>
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<td></td>
<td></td>
<td>• Handicraft</td>
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<tr>
<td></td>
<td></td>
<td>• Hotel and Catering</td>
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<tr>
<td></td>
<td></td>
<td>• Industry</td>
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<td></td>
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<td>• Natural Resources</td>
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<td></td>
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<td>• Social Sciences</td>
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<tr>
<td></td>
<td></td>
<td>• Vehicle</td>
</tr>
<tr>
<td>FE205</td>
<td>Organization and Management</td>
<td>• Business and Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Health Care and Nursing</td>
</tr>
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<td></td>
<td></td>
<td>• Social Sciences</td>
</tr>
<tr>
<td>FE206</td>
<td>Personnel Administration</td>
<td>• Business and Administration</td>
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<td>• Social Sciences</td>
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<tr>
<td>FE202</td>
<td>Export and Import</td>
<td>• Business and Administration</td>
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<td></td>
<td></td>
<td>• Social Sciences</td>
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<td>FE207</td>
<td>Financing and Calculation</td>
<td>• Social Sciences</td>
</tr>
<tr>
<td>FE204</td>
<td>International Economics</td>
<td>• Social Sciences</td>
</tr>
</tbody>
</table>

Table 2

Economics Courses in the National Programmes
Swedish society for immigrants with skills and business ideas.

As mentioned above, Sweden has not had a tradition of encouraging small businesses and there is a shortage of such businesses in Sweden's national economic picture. During the past years of recession and privatisation, many observers and analysts have raised their voices in warning of this situation and in encouragement of support for a broader small business sector. This type of "vocational" education in the form of "Starting Your Own Business" courses combined with the raised status of vocational education, as well as the introduction of the courses in basic business economics and business economics for small businesses under the Reform is expected to lead to an increase in the number and status of small businesses in Swedish society.

Table 2 (page 16) shows how economics is taught in the fifteen programmes.

### 9 Cooperation between the Schools and Industry

In the past decade especially, industrial vocations experienced further losses in status and appeal among youths. Many industrial workers were recruited from amongst students who either had low grade averages or who had very little interest in industry, choosing such vocations only as a last resort. The revolutionary changes in information transfer and technology in general have led to an acute awareness of the need for high competence and excellent knowledge in vocational skills as well as in general school subjects.

Representatives from the national employers association and the trade unions have set up national vocational councils for the purpose of input and follow-up concerning matters relevant to vocational education. There are also local representatives for these groups with whom the local school boards are now developing closer ties due to the necessity of cooperation and consultation on essential vocational education issues. The goal here is to set up local municipal centres or "forums" for organized discussions between representatives from employers, employees and the schools regarding technical and vocational education in order to keep it updated and viable.

Several private industries have taken their own initiative and set up different forms of cooperation with the upper secondary schools in order to ensure relevant technical and vocational education. One example of this is found in the town of Skövde where cooperation between three parties: Volvo Car Corporation, a local university college, and an upper secondary school, has lead to the creation of a Vehicle Engineering Centre. Volvo has a long tradition of programmes for integrating apprenticeship training with theoretical and practical upper secondary education. Today, in conjunction with the Educational Reform, three steps have been taken to create the new model intended to meet future demands:

Based on the concept of *life-long learning*, the existing apprenticeship training has been revised to constitute the first step in continuous training, to make it possible for the apprentice student to go on with his/her studies and become a qualified engineer.

The content of the apprenticeship training has been adjusted to meet the goal of developing technological competence.

A specially-designed programme has been initiated, combining aspects of the national programme for science and technology with vocational studies in industrial and vehicle engineering.

The participating students have been offered a period of apprenticeship training over the three years in the company, studying full-time (40 hours a week), which means that the six school years will be completed in three years.

Another company in Volvo Car Corporation, the Volvo Olofström Stamping Plants, has decided to attack the problem of the widespread lack of interest and misunderstanding concerning industrial vocations among youths today. Several projects have been initiated in cooperation with the schools in the Olofström area, parallel to the traditional cooperation between Volvo and upper secondary and higher education:

**Interest and pride for third graders (9-10 year olds):**

Parents who work at the Volvo Olofström Stamping Plants give informal presentations about their work and the company, and answer questions
that the children have. This is usually very enlightening information and makes the children proud of their parents and the parents of their friends, as well as sows the seeds of interest in working in heavy industry.

**Production for sixth graders:**
Sixth graders are informed in the classroom about pre-production and production activities, i.e. design, stamping and assembly, and then given the chance to see actual production operations at the plants.

**Technology for elementary school teachers of 4th-6th grades:**
In cooperation with the Industrial Development Centre of Olofström, Volvo offers its facilities to a teacher supplementary training programme in which elementary school teachers can up-date and expand their knowledge in matters concerning modern technology and production. These teachers can then provide their pupils with a more correct, detailed and vital picture of technology.

**Technology summer school for 8th graders (15 year olds):**
Experience and training in the activities at the stamping plants are provided in a summer course that is aimed at encouraging boys and girls to choose technical programmes when they must make a decision regarding which national programme to study after completing the 9th grade.

**Workplace-related training for upper secondary school students:**
Volvo participates in the regular workplace related training offered under the old programmes and the reformed national programmes.

**Cooperation with the university colleges:**
Volvo is often the site of course work projects for students at the university colleges in the Southern Sweden region.
References


FoU Rapport 42, Yrkesundervisning i ljuset av productionslivets reflexer, Liber UtbildningsFörlaget, Skolöverstyrelsen 1981.


SUO - Statens Offentliga Utredningar. In Swedish. (The Swedish GovernmentTs Official Reports)

Starta Eget Handboken Kullstedt and Melin (Handbook on how to start your own business)


The Swedish Institute, publications:
- Fact Sheets on Sweden, "Primary and Secondary Education" March 1992, FS 39 t Em.
- Fact Sheets on Sweden, "Adult Education in Sweden" December 1992, FS 64 n Em.08.

Appendix I: Fact Sheets on the Sixteen National Programmes

Vocational Programmes:
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Guidelines for reading the Fact Sheets

In order to graduate from a programme, the student must successfully complete:

- the required core subjects
- the required compulsory subjects for the chosen programme
- the required compulsory subjects for the chosen branch, and
- the individually selected electives.

This means that all students at youth upper secondary schools study the eight "core" subjects specified in section A on the fact sheets. These "core" subjects comprise the basis for participation in a democratic society, and for achieving lifelong learning. Then according to the respective programme and furthermore according to his/her choice of branch, the students study certain "compulsory" subjects in common with the other students in the same programme and ultimately, in the same branch. Each student then individualizes his/her programme by selecting a certain number of "electives" to study which are especially important to his/her individual educational goals.

Each course in the programmes carries a certain number of points. One point is equal to one lesson hour (40 minutes). The core subjects, compulsory subjects, and electives must be combined to achieve the minimum total number of points for graduation from a programme:

<table>
<thead>
<tr>
<th>Programme</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocational</td>
<td>2,400</td>
</tr>
<tr>
<td></td>
<td>(1,370 points in vocational subjects)</td>
</tr>
<tr>
<td>General/Theoretical</td>
<td>2,180</td>
</tr>
</tbody>
</table>

Note: The Arts Programme requires 2,180 points to graduate.

Only the points for the eight core subjects are specified on the fact sheets. As pointed out in the footnote on each fact sheet, the information on the fact sheets often refers to subjects, not specific courses studied in the programmes/branches and because of this, points cannot correctly be specified. Please see Appendix II (page 30) for an example of a completely specified programme, the Vehicle Programme.

Students at Municipal Adult Education schools can graduate from the Social Sciences programme or the Science and Technology programme. The programmes are otherwise highly individualized. All students study the core subjects but then each student is free to create his/her own programme based on a combination of courses from the different national programmes. To graduate with an upper secondary school certificate, the adult student must obtain 1,990 points.
### Arts Programme*

**A  Core subjects and compulsory subjects**

(in the order of value in study points):

<table>
<thead>
<tr>
<th>Subject</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedish</td>
<td>200</td>
</tr>
<tr>
<td>A: Language and Mankind</td>
<td>110</td>
</tr>
<tr>
<td>B: Language - Literature - Society</td>
<td>110</td>
</tr>
<tr>
<td>English A</td>
<td>110</td>
</tr>
<tr>
<td>Mathematics A</td>
<td>110</td>
</tr>
<tr>
<td>Civics A</td>
<td>90</td>
</tr>
<tr>
<td>Sports and Health A</td>
<td>80</td>
</tr>
<tr>
<td>Religion A</td>
<td>30</td>
</tr>
<tr>
<td>General Science A</td>
<td>30</td>
</tr>
<tr>
<td>Arts Activities</td>
<td>30</td>
</tr>
</tbody>
</table>

**Compulsory subjects in the Programme:**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>English B</td>
<td>110</td>
</tr>
<tr>
<td>History A</td>
<td>110</td>
</tr>
<tr>
<td>Mathematics B</td>
<td>90</td>
</tr>
</tbody>
</table>

**B  Vocational subjects in the Programme**

**Compulsory subjects**

- Basic Work Environment Knowledge
- Basic Computer Science
- Orientation in the Arts
- Basic Business Economics
- Basic Cultural History

**Electives**

- Arrangement and Composition
- Children and Music
- Children, Dance and Theatre
- Choir
- Composition
- Computer Graphics and Sound
- Conducting and Ensemble Conducting
- Cultural History
- Dance Improvisation and Design - Textiles and Fashion
- Design in Metal
- Design - Textiles and Weaving
- Design in Wood
- Design in Ceramics and Glass
- Design - Environment
- Dramatic Form and Composition
- Graphics
- History of Art and Design
- History of Dance and Theatre
- History of Music
- Images and Illustrations
- Instrument/Song
- Moving Pictures
- Music Production and Sound Music for Dance and Theatre
- Painting and Sculpture
- Photographic pictures
- Rhythm with Dance
- Scenography
- Staged Music Project
- Techniques
- Theatre Techniques
- Visualization

---

### C  Vocational subjects in the Programme branches

**C1 Dance and Theatre**

**Compulsory courses**

- Music for dance and theatre
- Theatre production

**Electives**

- Dance, form and acting
- Dance training
- Physical training
- Acting on stage

**C2 Art and Design**

**Compulsory courses**

- Images
- Design

**C3 Music**

**Compulsory courses**

- Ensemble
- Pitch and music
- Instrument/Song
- Music and communication

---

### Building and Construction Programme*

**A  Core subjects and compulsory subjects**

(in the order of value in study points):

<table>
<thead>
<tr>
<th>Subject</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedish</td>
<td>200</td>
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<td>A: Language and Mankind</td>
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<tr>
<td>English A</td>
<td>110</td>
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<td>Civics A</td>
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<tr>
<td>Sports and Health A</td>
<td>80</td>
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<tr>
<td>Religion A</td>
<td>30</td>
</tr>
<tr>
<td>General Science A</td>
<td>30</td>
</tr>
<tr>
<td>Arts Activities</td>
<td>30</td>
</tr>
</tbody>
</table>

**B  Vocational subjects in the Programme**

**Compulsory subjects**

- Basic Work Environment Knowledge
- Basic Computer Science
- Basic Business Economics
- Basic Electricity
- Building Construction Techniques

**C  Vocational subjects in the Programme branches**

**C1 Structural Sheet Metals**

**Compulsory courses**

- Construction Techniques

---

*Note that the above is mainly an overview of the subjects, not the actual courses offered, which are often more numerous.*
**Electives**
- Advanced Construction Techniques
- Vocational Construction Techniques

**C2 Building and Site Preparation**

**Electives**
- Site Construction Machine Techniques
- Site Construction Techniques
- Vocational Site Techniques
- Heavy Vehicle Technology

**C3 Painting**

**Electives**
- Building Techniques
- Vocational Painting Techniques
- Vehicle Painting Techniques

**Children and Recreation Programme**

**A Core subjects and compulsory subjects**
(in the order of value in study points):

<table>
<thead>
<tr>
<th>Subject</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedish</td>
<td>200</td>
</tr>
<tr>
<td>A: Language and Mankind</td>
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<tr>
<td>B: Language - Literature - Society</td>
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</tr>
<tr>
<td>English A</td>
<td>110</td>
</tr>
<tr>
<td>Mathematics A</td>
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<td>Civics A</td>
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<td>Sports and Health A</td>
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<td>Religion A</td>
<td>30</td>
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<td>General Science A</td>
<td>30</td>
</tr>
<tr>
<td>Arts Activities</td>
<td>30</td>
</tr>
</tbody>
</table>

**B Vocational subjects in the Programme**

**Compulsory subjects**
- Work Environment Knowledge
- Basic Computer Science
- Basic Business Economics
- Knowledge of Children and Recreation
- Pedagogy for Children and Recreation

**Electives**
- Activities for Children and Recreation
  - Play & Sports
  - Library Activities
  - Culture
  - Handicap and Recreation
  - Swimming
  - Creative Drama
  - Skiing
  - Child Care
  - Nature and Outdoor Recreation

**Business and Administration Programme**

**A Core subjects and compulsory subjects**
(in the order of value in study points):

<table>
<thead>
<tr>
<th>Subject</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedish</td>
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<tr>
<td>Arts Activities</td>
<td>30</td>
</tr>
</tbody>
</table>

**B Vocational subjects in the Programme**

**Compulsory subjects**
- Work Environment Knowledge
- Basic Computer Science
- Basic Business Economics
- Knowledge of Children and Recreation
- Pedagogy for Children and Recreation

**Electives**
- Activities for Children and Recreation
  - Play & Sports
  - Library Activities
  - Culture
  - Handicap and Recreation
  - Swimming
  - Creative Drama
  - Skiing
  - Child Care
  - Nature and Outdoor Recreation

**Electrical Engineering Programme**

**A Core subjects and compulsory subjects**
(in the order of value in study points):

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<tr>
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<td>Arts Activities</td>
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</tr>
</tbody>
</table>

**B Vocational subjects in the Programme**

**Compulsory subjects**
- Basic Work Environment Knowledge
- Basic Computer Science
- Basic Electronics
- Basic Electricity
- Basic Business Economics
- Quality Technology in Production
- Basic Control Technology
- Basic Workshop Techniques
Electives
Restricted Electrical Certificate BB2
Basic and Advanced Technology

C Vocational subjects in the Programme branches

C1 Automation
Compulsory subjects
Computer Science (CAD)
Electricity 3-phase AC current
Measurement and Control Systems
Control Technology using a PC

Electives
Advanced Electronics
Electronics Systems
Advanced Measurement and Control Systems
Advanced Control Technology
Welding Techniques
Workshop Techniques
Maintenance Hydraulics

C2 Electronics
Compulsory subjects
Advanced Electronics

Electives
Advanced Computer Programming and Applications
Advanced Electronics
Advanced Electronics Systems
Electricity: 3-phase AC
Electricity: Kitchen and Laundry Appliances
Medical Equipment
Basic Medical Knowledge
TV/Alarm/Network Installation

C3 Installation
Compulsory subjects
Electricity: 3-phase AC
Measurement and Control Systems
TV/Alarm/Network Installation

Electives
Computer Science CAD
Electrical Distribution
Electronics
Electrical Installation
Electrical Appliances
Advanced Measurement and Control Systems
Control Technology
Advanced TV/Alarm/Network

Energy Programme*

A Core subjects and compulsory subjects
(in the order of value in study points):

Swedish 200 pts
A: Language and Mankind
B: Language Literature Society
English A 110 pts
Mathematics A 110 pts
Civics A 90 pts
Sports and Health A 80 pts
Religion A 30 pts
General Science A 30 pts
Arts Activities 30 pts

B Vocational subjects in the Programme

Compulsory subjects
Basic Work Environment Knowledge
Basic Computer Science
Basic Electricity
Basic Energy Technology
Basic Business Economics
Environmental Science Energy
Measurement and Control Systems
Basic Control Technology
Basic Workshop Techniques

Electives within the Programme
Basic Electronics
Electricity: 3-phase AC + appliances
Advanced Energy Techniques
Maintenance Hydraulics

C Vocational subjects in the Programme branches

C1 Energy

Electives
Restricted Electrical Cert. BB2
Buildings: Operation Technology
Vehicle Tech. small machines
Combustion Engine Technology
Power and Heating Technology
Cooling and Heat Pump Tech.
Water Sewer Technology
Basic & Advanced Water Power
Heat Water Sanitation

C2 Shipping Technology

Electives
Shipping Technology: Safety
Shipping Technology: Maintenance
Shipping Technology: Operation
Shipping Technology: Fishery
Machinist Certificate
Master’s Certificate
Electricity: 3-phase AC
Medical Equipment

* Note that the above is mainly an overview of the subjects, not the actual courses offered, which are often more numerous.
Basic Medical Knowledge  
TV/Alarm/Network Installation  

C3 Water-Heat-Sanitation (WHS)  

**Electives**  
Restricted Electrical Cert. BB2  
Basic WHS technology  
WHS Welding  
WHS Advanced heating  
WHS Advanced sanitation  
WHS industrial pipes  

<table>
<thead>
<tr>
<th>Foodstuffs Programme*</th>
</tr>
</thead>
</table>
| **A Core subjects and compulsory subjects**  
(in the order of value in study points): |
| Swedish | 200 pts |
| A: Language and Mankind | |
| B: Language Literature Society | |
| English A | 110 pts |
| Mathematics A | 110 pts |
| Civics A | 90 pts |
| Sports and Health A | 80 pts |
| Religion A | 30 pts |
| General Science A | 30 pts |
| Arts Activities | 30 pts |

<table>
<thead>
<tr>
<th>B Vocational subjects in the Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compulsory subjects</strong></td>
</tr>
<tr>
<td>Basic Work Environment Knowledge</td>
</tr>
<tr>
<td>Basic Computer Science</td>
</tr>
<tr>
<td>Basic Business Economics</td>
</tr>
<tr>
<td>Trade Sales and Service</td>
</tr>
<tr>
<td>Hygiene</td>
</tr>
<tr>
<td>Basic Knowledge of Foodstuffs</td>
</tr>
<tr>
<td>Foodstuffs Technology</td>
</tr>
<tr>
<td>Knowledge of Material and Machines</td>
</tr>
<tr>
<td>Basic Nutrition</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
</tr>
<tr>
<td>Basic Electrical Safety</td>
</tr>
<tr>
<td>Business Economics Small Businesses</td>
</tr>
<tr>
<td>Basic Food Preparation Cold Dishes</td>
</tr>
<tr>
<td>Advanced Nutrition</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>C Vocational subjects in the Programme branches</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C1 Bakery and Patisserie</strong></td>
</tr>
<tr>
<td><strong>Compulsory subjects</strong></td>
</tr>
<tr>
<td>Basic Bakery</td>
</tr>
<tr>
<td>Basic Patisserie</td>
</tr>
<tr>
<td>Foodstuffs Knowledge</td>
</tr>
<tr>
<td>for Bakery and Patisserie</td>
</tr>
</tbody>
</table>

| **Electives** |
| Bakery production |
| Advanced Patisserie: Chocolate |
| Advanced Patisserie: Confectionery |
| Advanced Patisserie: Production |

| **C2 Fresh and Cured Meat Products** |
| **Compulsory subjects** |
| Basic Knowledge of Cured Meat |
| Foodstuffs: Butchery/Cured Meat |
| Basic Butchery |
| **Electives** |
| Cured Meat: production |
| Food Prep: in quantity/catering |
| Food Preparation: hot dishes |
| Advanced Butchery: pork/beef/other |

<table>
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<tr>
<th><strong>Handicraft Programme</strong>*</th>
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</table>
| **A Core subjects and compulsory subjects**  
(in the order of value in study points): |
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| A: Language and Mankind | |
| B: Language Literature Society | |
| English A | 110 pts |
| Mathematics A | 110 pts |
| Civics A | 90 pts |
| Sports and Health A | 80 pts |
| Religion A | 30 pts |
| General Science A | 30 pts |
| Arts Activities | 30 pts |

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<th>B Vocational subjects in the Programme</th>
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<td><strong>Compulsory subjects</strong></td>
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<td>Basic Electrical Safety</td>
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<tr>
<td>Basic Business Economics</td>
</tr>
<tr>
<td>Business Economics Small Businesses</td>
</tr>
<tr>
<td>Knowledge of Handicraft Orientation and Service</td>
</tr>
<tr>
<td>History of Culture and Style</td>
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<tr>
<td><strong>Electives</strong></td>
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<tr>
<td>Advanced Business Economics</td>
</tr>
<tr>
<td>Knowledge of Handicraft: materials</td>
</tr>
<tr>
<td>Knowledge of Handicraft: repair and storage</td>
</tr>
<tr>
<td>Basic Handicraft Techniques</td>
</tr>
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### Health Care and Nursing Programme*

<table>
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### Hotel and Catering Programme*

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</table>

### B Vocational subjects in the Programme

#### Compulsory subjects
- Basic Work Environment Knowledge
- Basic Computer Science
- Basic Business Economics
- Business Economics Organization & Management
- Health
- Knowledge of Health Care
- Basic Medical Knowledge
- Medical Knowledge: Man Social and Cultural
- Basic Health Care
- Psychology
- Basic Social Aspects of Health Care
- Technology in Health Care, Nursing, or Dental Care
- Knowledge of Dental Care

### C Vocational subjects in the Programme branches

#### C1 Health Care

#### Compulsory subjects
- Advanced Medical Knowledge
- Basic Ethics
- Advanced Health Care
- Advanced Social Aspects of Health Care
- Health Care

#### Electives
- Foot Health Care
- Health Care: Emergency
- Health Care: Day Clinics
- Health Care: Psychiatry
- Health Care: Children and Youths
- Rehabilitation
- The Mentally Handicapped

#### C2 Dental Care

#### Compulsory subjects
- Basic Dental Care
- Basic Dental Nursing

#### Electives
- Advanced Dental Care
- Advanced Dental Nursing

---

*Note that the above is mainly an overview of the subjects, not the actual courses offered, which are often more numerous.*
### Electives
- Food Prep: Special Diets
- Food Prep: Advance Restaurant Dishes
- Further Advanced Waiting Tables

### C3 Catering

#### Compulsory subjects
- Advanced Foodstuffs Hygiene
- Advanced Foodstuffs
- Food Prep: Catering
- Food Prep: Basic Restaurant Dishes
- Catering Production
- Advanced Nutrition
- Advanced Waiting Tables

#### Electives
- Food Prep: Special Diets
- Nutrition: Dietetics

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### Industry Programme*

#### A Core subjects and compulsory subjects

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#### B Vocational subjects in the Programme

#### Compulsory subjects
- Basic Work Environment Knowledge
- Basic Computer Science
- Basic Business Economics
- Basic Electrical Safety
- Quality Techniques in Production
- Basic Control Technology
- Basic Maintenance

#### Electives (one subject at least must be studied)
- Basic Workshop Techniques
- Basic Technology

#### C Vocational subjects in the Programme branches

#### C1 Industry

#### Compulsory subjects
- Production Technology
- CAD/CAM Technology
- Industry-Technology
- Basic CNC Workshop Techniques

---

#### E2 Process

#### Compulsory subjects (not printing)
- Basic Work Environment Knowledge
- Basic Computer Science
- Basic Business Economics
- Basic Electrical Safety
- Quality Techniques in Production
- Basic Control Technology
- Basic Maintenance

#### Electives
- Model Techniques
- Sawmill Technology
- CAD/CAM Techniques
- Wood Furniture Techniques
- Workshop Techniques

#### C3 Textiles & Garments

#### Compulsory subjects
- Basic Technology: Textiles & Garments
- Basic Materials

#### Electives
- Basic Foodstuffs Hygiene
- Basic Knowledge of Foodstuffs
- Process Techniques (pulp/paper, metal, casting, plastics.
  - foodstuffs, chemical, etc.)
- Screen/Printing Techniques

#### C4 Wood

#### Compulsory subjects
- Basic Wood Processes
- Basic wood materials
- Drying

#### Electives
- Model Techniques
- Sawmill Technology
- CAD/CAM Techniques
- Wood Furniture Techniques
- Workshop Techniques

---

*Note that the above is mainly an overview of the subjects, not the actual courses offered, which are often more numerous.*
**Media Programme**

A Core subjects and compulsory subjects
(in the order of value in study points):

Swedish 200 pts
A: Language and Mankind
B: Language Literature Society
English A 110 pts
Mathematics A 110 pts
Civics A 90 pts
Sports and Health A 80 pts
Religion A 30 pts
General Science A 30 pts
Arts Activities 30 pts

B Vocational subjects in the Programme

Compulsory subjects
Basic Work Environment Knowledge
Basic Computer Science
Basic Business Economics
Knowledge of Media
Media Forms and Expressions
Media Techniques

Electives
Advanced Expo
Advanced Photographic Pictures
Advanced Graphic Reproduction
Advanced Graphic Form
Advanced Graphic Montage
Advanced Illustration
Advanced Sound Media
Advanced Media Communication
Advanced Moving Pictures
Advanced Screen Techniques
Advanced Text Production
Advanced Text Handling

C Vocational subjects in the Programme

C1 Information and Advertising

Compulsory subjects
Media Communication

Electives (in combination with advanced course above)
Printed Pictures and Text
Basic Expo
Basic Photographic Pictures
Basic Graphic Reproduction
Basic Graphic Form
Basic Graphic Montage
Basic Sound Media
Basic Media Communication
Basic Moving Pictures
Basic Text Production
Basic Text Handling

C2 Printed Media

Compulsory subjects
Printed Pictures and Text

Electives (in combination with advanced course above)
Basic Expo
Basic Photographic Pictures
Basic Graphic Reproduction
Basic Graphic Form
Basic Graphic Montage
Basic Sound Media
Basic Media Communication
Basic Moving Pictures
Basic Text Production
Basic Text Handling

**Natural Resources Programme**

A Core subjects and compulsory subjects
(in the order of value in study points):

Swedish 200 pts
A: Language and Mankind
B: Language Literature Society
English A 110 pts
Mathematics A 110 pts
Civics A 90 pts
Sports and Health A 80 pts
Religion A 30 pts
General Science A 30 pts
Arts Activities 30 pts

B Vocational subjects in the Programme

Compulsory subjects
Basic Work Environment Knowledge
Basic Computer Science
Basic Business Economics
Knowledge of Media
Knowledge of Nature and the Environment

Electives
Working in a Team
Economizing in Food Preparation
Work Environments
Tools and Machines for Natural Resource Use
Knowledge of Nature and the Environment

C1 Information and Advertising

Compulsory subjects
Media Communication

Electives (in combination with advanced course above)
Printed Pictures and Text
Basic Expo
Basic Photographic Pictures
Basic Graphic Reproduction
Basic Graphic Form
Basic Graphic Montage
Basic Sound Media
Basic Media Communication
Basic Moving Pictures
Basic Text Production
Basic Text Handling

C2 Printed Media

Compulsory subjects
Printed Pictures and Text

Electives (in combination with advanced course above)
Basic Expo
Basic Photographic Pictures
Basic Graphic Reproduction
Basic Graphic Form
Basic Graphic Montage
Basic Sound Media
Basic Media Communication
Basic Moving Pictures
Basic Text Production
Basic Text Handling

B Vocational subjects in the Programme

Compulsory subjects
Basic Work Environment Knowledge
Basic Computer Science
Basic Business Economics
Basic Electrical Safety
Botany

Natural Resources Programme:

Compulsory subjects
Basic Work Environment Knowledge
Basic Computer Science
Basic Business Economics
Basic Electrical Safety
Botany

Electives
Working in a Team
Economizing in Food Preparation
Work Environments
Tools and Machines for Natural Resource Use
Knowledge of Nature and the Environment

C1 Information and Advertising

Compulsory subjects
Media Communication

Electives (in combination with advanced course above)
Printed Pictures and Text
Basic Expo
Basic Photographic Pictures
Basic Graphic Reproduction
Basic Graphic Form
Basic Graphic Montage
Basic Sound Media
Basic Moving Pictures
Basic Text Production
Basic Text Handling

C2 Printed Media

Compulsory subjects
Printed Pictures and Text

Electives (in combination with advanced course above)
Basic Expo
Basic Photographic Pictures
Basic Graphic Reproduction
Basic Graphic Form
Basic Graphic Montage
Basic Sound Media
Basic Media Communication
Basic Moving Pictures
Basic Text Production
Basic Text Handling

B Vocational subjects in the Programme

Compulsory subjects
Basic Work Environment Knowledge
Basic Computer Science
Basic Business Economics

Electives
Working in a Team
Economizing in Food Preparation
Work Environments
Tools and Machines for Natural Resource Use
Knowledge of Nature and the Environment

C1 Information and Advertising

Compulsory subjects
Media Communication

Electives (in combination with advanced course above)
Printed Pictures and Text
Basic Expo
Basic Photographic Pictures
Basic Graphic Reproduction
Basic Graphic Form
Basic Graphic Montage
Basic Sound Media
Basic Moving Pictures
Basic Text Production
Basic Text Handling

C2 Printed Media

Compulsory subjects
Printed Pictures and Text

Electives (in combination with advanced course above)
Basic Expo
Basic Photographic Pictures
Basic Graphic Reproduction
Basic Graphic Form
Basic Graphic Montage
Basic Sound Media
Basic Media Communication
Basic Moving Pictures
Basic Text Production
Basic Text Handling

B Vocational subjects in the Programme

Compulsory subjects
Basic Work Environment Knowledge
Basic Computer Science
Basic Business Economics

Electives
Working in a Team
Economizing in Food Preparation
Work Environments
Tools and Machines for Natural Resource Use
Knowledge of Nature and the Environment

Note that the above is mainly an overview of the subjects, not the actual courses offered, which are often more numerous.
Advanced Knowledge of Nature and the Environment:
Fishery, Recycling and Composting, Microbiology and Genetics, Waterways, Wildlife Conservation
Welding Technology

Vehicle Programme*

A Core subjects and compulsory subjects
(in the order of value in study points):
Swedish 200 pts
A: Language and Mankind
B: Language Literature Society
English A 110 pts
Mathematics A 110 pts
Civics A 90 pts
Sports and Health A 80 pts
Religion A 30 pts
General Science A 30 pts
Arts Activities 30 pts

B Vocational subjects in the Programme
Compulsory subjects
Basic Work Environment Knowledge
Basic Computer Science
Basic Business Economics
Basic Electrical Safety
Basic Vehicle Technology

C Vocational subjects in the Programme branches

C1 Aircraft Maintenance
Electives
Electricity: DC and 1-phase AC
Electronics
Electronic Systems
Basic Aircraft Technology
Combustion Motor Technology
Basic Fuselage
Basic Aircraft Control Systems

C2 Body Work
Electives
Vehicle Service and Maintenance
Body Work
Painting Techniques
Welding Techniques
Repair of Plastics

C3 Vehicles
Compulsory subjects
Vehicle Service and Maintenance Vehicle Electricity and Electronics
Body Work and Interior

Electives
Electronic Systems
Vehicle Technology
Basic Heavy Vehicles
Electric Vehicles
Combustion Motor Technology
Business Econ: small businesses
Trade: Sales and Service
Branch and Product Knowledge
Personal Sales Techniques
Chassis: Passenger Cars
Chassis: Heavy Vehicles
Air Conditioning Systems
Power Transmission Technology
Control Systems: Heavy Vehicles
Hydraulic Systems
Welding Techniques

C4 Transport
Compulsory subjects
Basic Heavy Vehicles

Electives
Construction Site Vehicles
Preparing Construction Site
Business Econ: Small Businesses
Transport Technology
Air Cargo
Timber Transports
Logistics
Tank and Bulk Transport
Sanitation Transport
Distribution Transport

Social Sciences Programme*

A Core subjects and compulsory subjects
(in the order of value in study points):
Swedish 200 pts
A: Language and Mankind
B: Language Literature Society
English A 110 pts
Mathematics A 110 pts
Civics A 90 pts
Sports and Health A 80 pts
Religion A 30 pts
General Science A 30 pts
Arts Activities 30 pts

B Compulsory subjects in the Programme:
Advanced English
Philosophy/Psychology
Basic History
Advanced Sports and Health
Advanced Mathematics
Advanced General Science
Religion
Foreign Language 2
Swedish

Note that the above is mainly an overview of the subjects, not the actual courses offered, which are often more numerous.
C Subjects in the Branches of the Programme:

C1 Economics

Compulsory subjects
- Geography
- Mathematics
- Administration
- Basic Word Processing
- Basic Computer Science
- Basic Business Economics
- Advanced Business Economics
- Basic Law

Electives
- Foreign Language 3
- Business Communication
- Business Comm: English
- Business Comm: French
- Business Comm: Spanish
- Business Comm: German
- Advanced Word Processing
- Business Econ: Small Businesses
- International Business Economics
- Marketing
- Accounting and Taxation
- Corporate Law

C2 Humanities

Subjects
- Advanced History
- Foreign Language 3
- Latin + General Linguistics
- Foreign Language 4
- Civics
- Advanced Studies: Humanities/Social Sciences

C3 Social Sciences

Subjects
- Basic and Advanced Geography
- Further Advanced Mathematics
- Advanced History
- Advanced Civics
- Advanced Studies in the Humanities/Social Sciences

Science and Technology Programme*

A Core subjects and compulsory subjects
(in the order of value in study points):

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<tr>
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<tr>
<td>Arts Activities</td>
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B Compulsory subjects in the Programme:
- Basic Biology
- English
- Physics
- Basic History
- Mathematics
- Advanced Mathematics
- Environmental Science
- Foreign Language 2
- Basic Technology

C Subjects in the Branches of the Programme:

C1 Science

Subjects
- Advanced Biology
- Philosophy
- Advanced Sports and Health
- Advanced Chemistry
- Psychology

C2 Technology

Subjects
- Advanced Technology
- Further Advanced Technology

* Note that the above is mainly an overview of the subjects, not the actual courses offered, which are often more numerous.
## Appendix II: Vehicle Programme Specification

Required study points: 2,400 points of which 1,370 points in vocational subjects

### A Core subjects and compulsory subjects

**(in the order of value in study points):**

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### B Vocational courses within the Programme:

#### Compulsory Subjects

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### C Vocational subjects within the Branches of the Programme:

#### C1 Branch: Aircraft technology

**Electives**

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#### C2 Branch: Bodywork

**Electives**

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#### C3 Branch: Vehicle Technology

**Compulsory Subjects**

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### Electives

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<td>Vehicle Technology</td>
<td>Passenger Cars - Basics</td>
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### Electives

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### C4 Branch: Transport

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