



Examensbevis/*Degree Certificate*

Anders Parmbro

har avlagt

Civilingenjörsexamen
inom industriell ekonomi

has been awarded the degree

Master of Science in Engineering
Degree Programme in
Industrial Engineering and Management

utfärdat/*issued*

8 april 2004

av rektor vid Kungliga Tekniska högskolan, KTH
by the President of the Royal Institute of Technology, Sweden

Anders Flodström



Examensbevis
Degree Certificate

Anders Parmbro

710317-3576

har i enlighet med högskoleförordningen (1993:100), avlagt civilingenjörsexamen inom industriell ekonomi, 180 poäng och erhållit följande betyg:
has, in accordance with the Swedish Higher Education Ordinance (1993:100), been awarded the degree Master of Science in Engineering, Degree Programme in Industrial Engineering and Management, 180 credits, with the following grades:

Kurs <i>Subjects</i>	Poäng <i>Credits</i>	Betyg <i>Grade</i>	Datum <i>Date</i>
Examensarbete inom industriell ekonomi <i>Master's Project in Industrial Economics and Management</i> Examinator: Univ lekt Terrence Brown	20.0	Godkänd* <i>Pass*</i>	Mar 2004
Create a Business Opportunity <i>Create a Business Opportunity</i>	5.0	Fyra <i>Four</i>	Nov 2002
Databasteknik <i>Database Technology</i>	4.0	Tre <i>Three</i>	Maj 2001
Datorteknik, allmän kurs <i>Computer Hardware Basics</i>	4.0	Tre <i>Three</i>	Dec 2000
Differential- och integralkalkyl I <i>Calculus I</i>	10.0	Tre <i>Three</i>	Mar 1999
Differentialekvationer och transform I <i>Differential Equations and Transforms I</i>	4.0	Tre <i>Three</i>	Apr 2000
Digital elektronik <i>Digital Electronics</i>	4.0	Fyra <i>Four</i>	Maj 2000
Ekologi och miljöskyddsteknik <i>Ecology and Environmental Technology</i>	4.0	Fem <i>Five</i>	Jan 2000
Ekonomi och ledarskap i teknikintensiv verksamhet <i>Management in Technology Intensive Organisations</i>	4.0	Fem <i>Five</i>	Mar 2004



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Ekonomistyrning: Strategiska och beteendeorienterade perspektiv <i>Management Control: Strategic and Behavioural Perspectives</i>	4.0	Fem <i>Five</i>	Dec 2000
Elektromagnetism och vågrörelselära <i>Electromagnetism and Waves</i>	5.0	Fyra <i>Four</i>	Okt 1999
Grafik och interaktionsprogrammering <i>Graphics and Interaction Programming</i>	4.0	Fem <i>Five</i>	Mar 2001
Industriell ekonomi och organisation, fortsättningskurs <i>Industrial Economics and Management, Advanced Course</i>	7.0	Fyra <i>Four</i>	Maj 2000
Industriell ekonomi, grundkurs <i>Industrial Economics, Basic Course</i>	7.0	Fem <i>Five</i>	Apr 1999
Ingenjörsarbete, teknik, humaniora <i>Engineering</i>	5.0	Godkänd* <i>Pass*</i>	Jun 1999
Internetprogrammering <i>Internet Programming</i>	4.0	Tre <i>Three</i>	Apr 2001
Kognitionspsykologi <i>Cognitive Psychology</i>	4.0	Fyra <i>Four</i>	Nov 2000
Kostnadsanalys och resultatmätning <i>Cost Management and Performance Measurement</i>	4.0	Fem <i>Five</i>	Maj 2001
Kunskapsbildning I <i>Knowledge Formation I</i>	4.0	Godkänd* <i>Pass*</i>	Maj 2001
Kunskapsbildning II <i>Knowledge Formation II</i>	4.0	Fyra <i>Four</i>	Dec 2002



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Kurs <i>Subjects</i>	Poäng <i>Credits</i>	Betyg <i>Grade</i>	Datum <i>Date</i>
Linjär algebra II <i>Linear Algebra II</i>	5.0	Tre <i>Three</i>	Okt 1998
Mekanik, baskurs <i>Mechanics, Basic Course</i>	6.0	Fem <i>Five</i>	Mar 1999
Människa - datorinteraktion, grundkurs <i>Fundamentals of Human-Computer Interaction</i>	4.0	Fem <i>Five</i>	Dec 2000
Numeriska metoder, grundkurs I <i>Numerical Methods, Basic Course I</i>	4.0	Fem <i>Five</i>	Apr 2000
Objektorienterad programkonstruktion med C++ <i>Object Oriented Program Construction using C++</i>	4.0	Tre <i>Three</i>	Jan 2001
Programmeringsteknik <i>Programming Technique</i>	4.0	Fem <i>Five</i>	Maj 1999
Programutvecklingsprojekt <i>Program Development Project</i>	4.0	Godkänd* <i>Pass*</i>	Jun 2001
Programvarudesign - ekonomi - ledarskap <i>Software Design - Business - Leadership</i>	8.0	Fyra <i>Four</i>	Jun 2003
Sannolikhets teori och statistik I <i>Probability Theory and Statistics</i>	4.0	Fyra <i>Four</i>	Dec 1999
Spanska, grundkurs <i>Spanish, Elementary Course</i>	4.0	Fem <i>Five</i>	Maj 2001
Teknisk spanska, mellanivå <i>Technical Spanish, Intermediate Level</i>	6.0	Fem <i>Five</i>	Feb 2003
Tillämpad datalogi <i>Applied Computer Science</i>	4.0	Fyra <i>Four</i>	Apr 2000
Tyska, fortsättningsnivå <i>German, Advanced Beginner's Level</i>	4.0	Fem <i>Five</i>	Dec 2002



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Examensarbetets titel
Title of Master's Project

Approaches of Aftermarket Services for
Successful Customer Relations - A Study of
Volvo Trucks de México S.A. de C.V.

TILLGODORÅKNANDEN/ EXTERNAL CREDITS

Enligt Utbildningsnämndens beslut, Dnr 100-376-02, ingår i examen utöver ovanstående vissa utbildningsmoment motsvarande 12 poäng fullgjorda vid Universidad de Cantabria, Santander, Spanien.

Based on decision by the Faculty Board (Reg. No. 100-376-02), an additional 12 credits have been awarded for studies completed at Universidad de Cantabria, Santander, Spain.

Kurs <i>Subjects</i>	Poäng <i>Credits</i>	Datum <i>Date</i>
Ekonomibreddningskurser <i>Graduate courses in Business Management</i>	12.0	Sep 2002



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Fordringarna för examen är därmed uppfyllda
Degree requirements have therefore been fulfilled

24 mars 2004
24 March 2004

Stockholm, Sweden 8 april 2004

Susanne Öster
KTH, Examen/Degree Administration Office

En poäng representerar en veckas heltidsstudier och 40 poäng svarar mot ett års akademiska heltidsstudier.
One credit represents one week's full-time study, and 40 credits one full academic year.

Betygsgraderna är: Fem (5) Med beröm godkänd, Fyra (4) Icke utan beröm godkänd eller Tre (3) Godkänd.
Grades awarded are: Five (5), Four (4), and Three (3). The higher the figure, the better the grade.

Om endast betyget Godkänd ges markeras detta med en asterisk (*).
If the Pass Grade only is awarded, this is marked with an asterisk ().*

For an authentication of this Degree Certificate contact the Degree Administration Office at examen@kth.se.



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KURSER UTÖVER EXAMEN / *ADDITIONAL COURSES NOT INCLUDED IN THE DEGREE*

Kurs <i>Subjects</i>	Poäng <i>Credits</i>	Betyg <i>Grade</i>	Datum <i>Date</i>
Valfria kurser** <i>Elective courses**</i>	8.0		Sep 2002
Valfria kurser** <i>Elective courses**</i>	15.0		Sep 2002

** Tillgodoräknade från Universidad de Cantabria, Santander, Spanien

** *Course completed at Universidad de Cantabria, Santander, Spain*

Stockholm, Sweden 8 april 2004

Susanne Öster

KTH, Examen/Degree Administration Office

En poäng representerar en veckas heltidsstudier och 40 poäng svarar mot ett års akademiska heltidsstudier.

One credit represents one week's full-time study, and 40 credits one full academic year.

Betygsgraderna är: Fem (5) Med beröm godkänd, Fyra (4) Icke utan beröm godkänd eller Tre (3) Godkänd.

Grades awarded are: Five (5), Four (4), and Three (3). The higher the figure, the better the grade.

Om endast betyget Godkänd ges markeras detta med en asterisk (*).

If the Pass Grade only is awarded, this is marked with an asterisk ().*

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DIPLOMA SUPPLEMENT

This Diploma Supplement follows the model developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international "transparency" and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

- 1.1 Family name: Parmbro
- 1.2 Given name: Anders
- 1.3 Date of birth (day/month/year): 17 March 1971
- 1.4 Civic registration number: 710317-3576

2. INFORMATION IDENTIFYING THE QUALIFICATION

- 2.1 Date of issue: 8 April 2004
- 2.2 Name of qualification and (if applicable) title conferred (in original language):
Civilingenjörsexamen inom industriell ekonomi.
- 2.3 Name of qualification and (if applicable) title conferred in official translation to English:
Master of Science in Engineering, Degree Programme in Industrial Engineering and Management.
- 2.4 Main field(s) of study for the qualification: Industrial Engineering and Management.
- 2.5 Name (in original language) and status of awarding institution:
Kungliga Tekniska högskolan (State)
- 2.6 Name (in original language) and status of institution (if different from 2.5) administering studies:
Not applicable.
- 2.7 Language(s) of instruction: Swedish.

3. INFORMATION ON THE LEVEL OF THE QUALIFICATION

- 3.1 Level of qualification: Undergraduate education 4-5 years.
- 3.2 Official length of programme: 180 credits (270 ECTS). The scope of undergraduate education shall be stated in accordance with a credit system, where each credit corresponds to one week's full-time study.
- 3.3 Access requirement(s): General eligibility is attained by completing an upper secondary school programme and obtaining a pass grade or better in courses comprising at least 90 per cent of the upper secondary credits required in the programme, or by providing proof of an equivalent level of knowledge. The specific eligibility (requirements) vary according to the field of higher education and are expressed in terms of subjects in the upper secondary school.

4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1 Mode of study: Full-time equivalent.

4.2 Degree requirements:

Higher Education Ordinance (1993:100)

Master of Science in Engineering (Civilingenjörsexamen)

Scope

A Master of Science in Engineering shall be awarded after completion of course requirements of 180 credits in total.

Objectives (in addition to the general objectives in chapter 1 section 9 of the Higher Education Act)

In order to obtain a Master of Science in Engineering, the student shall have

- acquired knowledge of mathematics and natural science subjects to the extent required to understand and be able to apply the mathematical and natural science basis of the chosen area of technology,
- acquired knowledge of and skills in the design of products, processes and working environments, taking into account the abilities and needs of human beings as well as society's objectives as regards social conditions, economy of resources, environment and economy,
- acquired the knowledge enabling him or her, after a few years' work experience within his or her field, to take independent responsibility for development or utilisation of new technology at an internationally competitive level.

The objectives decided by the individual institution of higher education shall apply in addition.

Local regulations

The degree of Master of Science in Engineering is awarded after successful completion of the relevant educational programme for engineering at the Royal Institute of Technology (KTH). The degree is entitled "Master of Science in Engineering, Degree programme of ...". The title is established by the President of KTH. Local requirements state that the programme shall be designed so that the student has fulfilled the following conditions:

Completed course requirements of 180 credits including:

- courses in engineering sciences and mathematics/natural sciences to a total of at least 100 credits, of which courses within mathematics/natural sciences form at least 30 credits and courses within engineering sciences at least 50 credits,
- at least 15 credits from courses at Specialised Level (D-level),
- a degree project / thesis of 20 credits at Specialised Level (D-level).

At least 60 credits must have been earned at KTH. The degree project / thesis must always be submitted to KTH or be submitted within the framework of KTH approved exchange studies.

According to the Higher Education Ordinance "If courses included in a vocational qualification in total fulfil the requirements stated for a Master or Bachelor degree, as concerns both scope and depth of study, this must be stated on the degree certificate if the student so requests".

Additional objectives and degree requirements may apply which after request will be established by Faculty Board.

- 4.3 Programme details (e.g. modules or units studied), and the individual grades/marks/credits obtained (if this information is available on an official transcript this should be used here): See Degree Certificate/Official Transcript.
- 4.4 Grading scheme and, if available, grade distribution guidance: See Degree Certificate/Official Transcript.
- 4.5 Overall classification of the qualification (in original language): Not applicable for Swedish degrees.

Name: Anders Parmbro, Civic Registration Number: 710317-3576

5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

- 5.1 Access to further study: The degree gives access to postgraduate training.
- 5.2 Professional status (if applicable): Regulated education in accordance with the Swedish Degree Ordinance and covered by directive 89/48/EEC or 92/51/EEC by 2001/19/EC.

6. ADDITIONAL INFORMATION

- 6.1 Additional information: The Master of Science in Engineering programmes are comprised of three consecutive blocks. The first consists of a basic block of courses in Natural Sciences and Mathematics. This is followed by a block of courses in Applied Engineering Sciences. The third block includes optional and compulsory courses within a chosen area of specialisation.

- 6.2 Further information sources:


Kungliga Tekniska högskolan (KTH),
SE-100 44 Stockholm, <http://www.kth.se>

National Agency for Higher Education, The Swedish ENIC/NARIC office, Box 7851,
SE -103 99 Stockholm, <http://www.hsv.se>

7. CERTIFICATION OF THE SUPPLEMENT

- 7.1 Date: 8 April 2004

- 7.2 Signature and official stamp or seal (if used)


Susanne Öster



- 7.3 Capacity: Official Responsible for Degrees

Name: Anders Parmbro, Civic Registration Number: 710317-3576

8. INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

(The following description is approved by the National Agency for Higher Education)

GENERAL

Higher education institutions have great autonomy in the organisation of studies, use of resources and general organisation. The higher education institutions in Sweden are designated as either "universitet" or "högskola". The status of "universitet" is awarded by the Government to higher education institutions fulfilling certain criteria. Diplomas from all higher education institutions recognised by the Government have equal official value. The same law governs all higher education institutions. Private providers of higher education may be recognised by the Government, obtain the right to award degrees and receive state subsidies. All recognised higher education is funded by the State. All university programmes and major subjects are to be evaluated by the National Agency for Higher Education every six years, starting in 2001.

GRADING

The Higher Education Ordinance states that the following grades can be used: Pass with Distinction ("väl godkänd"), Pass ("godkänd") or Fail ("underkänd") unless the institution decides to grade on some other scale. A number of courses use only two grades: Pass and Fail. Others, like Law and Engineering, traditionally use scales with several levels – expressed as letters or numbers. No overall grade is given for a degree.

DEGREES

Higher education is provided in the form of courses. These may be linked to constitute degree programmes with varying levels of individual choice. Students themselves are also able to combine different courses into a degree. A course syllabus is required for each undergraduate course and a curriculum for each degree programme.

Sweden has a system of credit points ("poäng"), one week of successful full-time study is equivalent to 1 credit point. One academic year usually yields 40 credit points.

In the Degree Ordinance, the Government has laid down which degrees may be awarded and the objectives for these degrees. In the Swedish higher education system there are generally no intermediate qualifications. All degrees are regarded as final qualifications, even if there is a possibility to continue studying. Degrees are divided into general degrees and professional degrees.

General degrees:

1. "högskoleexamen" requiring a minimum of 80 credit points
2. "kandidatexamen" requiring a minimum of 120 credit points with 60 credit points in the major subject including a thesis/degree project of 10 credit points
3. "magisterexamen med ämnesdjup" requiring a minimum of 160 credit points with 80 credit points in the major subject including one thesis of 20 or two theses/ degree projects of 10 credit points each
4. "magisterexamen med ämnesbredd" requiring a minimum of 40 credit points with specialisation including a thesis/ degree project of at least 10 credit points. A prerequisite for "magisterexamen med ämnesbredd" is a general or professional degree of at least 120 credit points or a comparable foreign degree.

"Kandidatexamen" and "magisterexamen med ämnesdjup" may indicate the major subject or faculty, e.g. "ekonomic magisterexamen". The most advanced courses (60-80 credits level) at "magisterexamen" can be accepted as partial fulfilment of the requirements of doctoral programme.

Institutions entitled to describe themselves as "universitet" have the right to award the degrees of "magisterexamen med ämnesdjup" and "magisterexamen med ämnesbredd".

Institutions designated as "högskola" have a general entitlement to award the degree of "magisterexamen med ämnesbredd" but need to apply for the right to award the degree of "magisterexamen med ämnesdjup".

Professional degrees:

Professional degrees are awarded in the fields of engineering, health care, agriculture, law, education, fine arts etc. Programmes leading to professional degrees vary in length depending on their character. There are around 50 professional degrees. Professional qualification also includes degrees in fine arts. Some of the professional degrees demand a previous undergraduate qualification as a prerequisite, especially within the field of health care. Institutions have to apply for the right to award professional degrees.

ACCESS AND ADMISSION TO HIGHER EDUCATION

Higher education in Sweden has two strata of eligibility: general/basic and (additional) specific requirements. The general eligibility is the same for all higher education. General eligibility is attained by completing an upper secondary school programme and obtaining a pass grade or better in courses comprising at least 90 per cent of the credits required for the programme, or by providing proof of an equivalent level of knowledge. People who are at least 25 years old, who have been employed for four years and who have a command of English and Swedish corresponding to that obtained by completing a national upper secondary programme are also considered to have general eligibility. The specific requirements vary according to the field of higher education and are expressed in terms of subjects in the upper secondary school. Numerus clausus is used for all study programmes and courses.

POSTGRADUATE TRAINING

Institutions entitled to describe themselves as "universitet" have permanent allocations of funds for research and postgraduate education and can award doctoral degrees, whereas for institutions designated as "högskola" these rights may be restricted to specific research areas only or they may have research links with a "universitet".

Postgraduate training is based on undergraduate education of at least 120 credit points. Furthermore, the faculty board in question may stipulate additional requirements for admission. Postgraduate programmes nominally comprise 160 credit points (four years) and lead to a "doktorsexamen" (PhD). A PhD student must complete a number of taught courses and write a doctoral dissertation. The dissertation must be defended at a public oral examination. A "licentiatexamen" (licentiate degree) can be obtained after a minimum of 2 years, 80 credit points, including course work and a thesis. Normally students aim directly for a "doktorsexamen" but it is also possible to take a "licentiatexamen" as an intermediate degree. All faculties can award a "licentiat" - or "doktorsexamen", in which the discipline is named, e.g. "teknologic licentiatexamen" (Licentiate in Technology). However a faculty of engineering, like any other, may also award a "filosofie doktorsexamen" (Ph.D).