NOTARIUS PUBLICUS I GÖTEBORG

I, the undersigned, PER BÄCKLUND Notary Public of Göteborg, Sweden, do hereby certify that the hereto attached photocopies are true and faithful reproductions of the original documents.

Göteborg, this 27th day of February 2017
Ex officio:

Per Bäcklund

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Exp. No. 189859

Postadress/Postal Address	Besöksadress/Visitors	Exp. tid/Office hours	Telefon/Telephone	e-mail:
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S-404 39 GÖTEBORG	GÖTEBORG	10:00-12:00, 13:00-15:30		

CHALMERS

CHALMERS TEKNISKA HÖGSKOLA

CHALMERS UNIVERSITY OF TECHNOLOGY · GOTHENBURG · SWEDEN

Sebastian Nilsson

HAR AVLAGT

CIVILINGENJÖRSEXAMEN

INRIKTNING: AUTOMATION OCH MEKATRONIK

MASTERPROGRAM: SYSTEMS, CONTROL AND MECHATRONICS

HAS BEEN AWARDED THE DEGREE OF

MASTER OF SCIENCE IN ENGINEERING

MAIN FIELD OF STUDY: AUTOMATION AND MECHATRONICS ENGINEERING

MASTER'S PROGRAMME: SYSTEMS, CONTROL AND MECHATRONICS

Göteborg 28 november 2014

På rektors vägnar
On behalf of the President

Karolina Rythla

Karolina Rythla
Examenshandläggare
Officer of Degree

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CHALMERS TEKNISKA HÖGSKOLA

CHALMERS UNIVERSITY OF TECHNOLOGY

Examensbevis för

Degree diploma awarded to

Sebastian Nilsson

890102-6974

Kurser *Courses*	**Hp*** *Credits*	**Betyg** *Grades*	**Datum** *Date*
Kandidatarbete vid Signaler och system *Bachelor's thesis in Signals and systems*	15.0	Fem *Five*	31 maj 2011
Masterexamensarbete vid Signaler och system *Master's thesis in Signals and systems*	30.0	Godkänd *Passed*	27 okt 2014
Digital- och datorteknik *Fundamentals of digital systems and computers*	7.5	Fem *Five*	15 dec 2008
Maskinorienterad programmering *Machine oriented programming*	7.5	Fyra *Four*	9 mar 2009
Elektriska kretsar *Electric circuits*	7.5	Fem *Five*	29 maj 2009
Miljöteknik och elenergi *Environmental systems*	7.5	Tre *Three*	25 nov 2009
Material- och tillverkningsteknik *Materials and manufacturing technology*	7.5	Fyra *Four*	19 maj 2014
Introduktion till automation och mekatronik *Introduction to automation and mechatronic engineering*	7.5	Godkänd *Passed*	20 nov 2008
Flervariabelmatematik *Calculus in several variables*	7.5	Fyra *Four*	1 sep 2012
Matematisk statistik *Mathematical statistics*	7.5	Fem *Five*	8 nov 2010
Människa maskinsystem *Human machine systems*	7.5	Fyra *Four*	18 mar 2011
Sensorer, signaler och system *Sensors, signals and systems*	15.0	Tre *Three*	9 mar 2010
Systemkonstruktion *Systems engineering*	7.5	Fem *Five*	22 okt 2010
Reglerteknik *Automatic control*	7.5	Tre *Three*	19 aug 2010
Industriautomation *Industrial automation*	7.5	Fem *Five*	17 dec 2010

* Högskolepoäng (Hp)

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Examensbevis för

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Kurser *Courses*	**Hp*** *Credits*	**Betyg** *Grades*	**Datum** *Date*
Objektorienterad programmering *Object-oriented programming*	7.5	Fyra *Four*	26 maj 2009
Industriell ekonomi och samhällsutveckling *Industrial economy and society*	7.5	Fem *Five*	21 dec 2010
Arbetsorganisation *Work organization*	7.5	Fyra *Four*	26 maj 2011
Mekanik *Mechanics*	7.5	Tre *Three*	12 apr 2012
Hållfasthetslära och maskinelement *Applied mechanics*	7.5	Fyra *Four*	15 jan 2014
Inledande matematik *Introductory course in mathematics*	9.0	Tre *Three*	24 okt 2008
Matematisk analys i en variabel *Calculus in one variable*	7.5	Fyra *Four*	18 dec 2008
Linjär algebra *Linear algebra*	7.5	Fyra *Four*	14 mar 2009
Modellering och simulering *Modelling and simulation*	7.5	Fyra *Four*	4 aug 2013
Händelsediskreta system *Discrete event systems*	7.5	Fyra *Four*	23 okt 2012
Inbyggda styrsystem *Embedded control systems*	7.5	Fem *Five*	3 jun 2013
Design project in systems, control and mechatronics *Design project in systems, control and mechatronics*	7.5	Fem *Five*	25 okt 2013
Design av linjära reglersystem *Linear control system design*	7.5	Fyra *Four*	2 apr 2013
Olinjär och adaptiv reglering *Nonlinear and adaptive control*	7.5	Tre *Three*	21 okt 2013
Simulering av produktionssystem *Simulation of production systems*	7.5	Fem *Five*	20 dec 2013

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* Högskolepoäng (Hp)

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CHALMERS TEKNISKA HÖGSKOLA

Examensbevis för

CHALMERS UNIVERSITY OF TECHNOLOGY

Degree diploma awarded to

Sebastian Nilsson

890102-6974

Kurser *Courses*	**Hp*** *Credits*	**Betyg** *Grades*	**Datum** *Date*
Applied signal processing *Applied signal processing*	7.5	Fem *Five*	20 dec 2012
Design av mekatroniska system *Mechatronic design*	7.5	Tre *Three*	13 mar 2013
Chalmers formula student *Chalmers formula student*	15.0	Fem *Five*	2 dec 2013
Projekt *Project*	7.5	Fem *Five*	28 mar 2014

Examen är på avancerad nivå och omfattar 300 Hp
The degree is within the second cycle and comprises 300 credits

Examensfordringarna var avklarade 2014-10-27
The degree requirements were satisfied on October 27, 2014

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* Högskolepoäng (Hp)

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CHALMERS

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 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. It should be free from any value judgements, equivalence statements or suggestions about recognition. 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(s): Nilsson

1.2 Given name(s): Sebastian

1.3 Date of birth (day/month/year): 2 January 1989

1.4 Student identification number or code (if available): 890102-6974

2. Information identifying the qualification

2.1 Name of qualification and (if applicable) title conferred (in original language): Civilingenjörsexamen

2.2 Main field(s) of study for the qualification: See Degree Certificate/Official Transcript

2.3 Name and status of awarding institution (in original language): Chalmers tekniska högskola (private)

2.4 Name and status of institution (if different from 2.3) administering studies (in original language): Not applicable.

2.5 Language(s) of instruction/examination: Swedish / English

3. Information on the level of the qualification

3.1 Level of qualification: Second cycle. For more information on higher education in Sweden, please see point 8, appendix 2.

3.2 Official length of programme: 300 credits (300 ECTS). The scope of the education is to be indicated in credits, with full time studies for a normal 40-week academic year corresponding to 60 credits.

3.3 Access requirement(s): A basic eligibility examination is made to determine whether the applicant has completed a national programme at high school, has the equivalent Swedish or foreign education or has acquired the equivalent knowledge through another process.
The applicant should have the necessary knowledge in the language of the course programme. This normally means that a person who has a native language other than Swedish, Norwegian, Danish, Icelandic or Faroese shall have the requisite knowledge of Swedish. For those courses or programmes which are run in a language other than Swedish, an examination of knowledge of this language is required in the same way.
A special eligibility examination is made to determine whether the person seeking admission onto a programme at Chalmers has the specific prior knowledge which is relevant for the course programme in question. Requirements for special eligibility could include:
1. Knowledge in a subject in the national high school programme or equivalent knowledge
2. Knowledge from one or more university courses or
3. Other conditions which are determined by the course programme or which are of significance to the professional field for which the programme is preparing the student.
Real expertise shall be taken into account.

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4. Information on the contents and results gained

4.1 Mode of study: Full-time equivalent.

4.2 Programme requirements
Scope
A Degree of Master of Science in Engineering is awarded after the student has completed the courses required to gain 300 credits (300 ECTS).

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Outcomes
For a Degree of Master of Science in Engineering the student shall demonstrate the knowledge and skills required to work autonomously as a graduate engineer.

Knowledge and understanding
For a Degree of Master of Science in Engineering the student shall
- demonstrate knowledge of the disciplinary foundation of and proven experience in his or her chosen field of technology as well as insight into current research and development work, and
- demonstrate both broad knowledge of his or her chosen field of technology, including knowledge of mathematics and the natural sciences, as well as a considerable degree of specialized knowledge in certain areas of the field.

Competence and skills
For a Degree of Master of Science in Engineering the student shall
- demonstrate the ability to identify, formulate and deal with complex issues autonomously and critically and with a holistic approach and also to participate in research and development work and so contribute to the formation of knowledge
- demonstrate the ability to create, analyse and critically evaluate various technological solutions
- demonstrate the ability to plan and use appropriate methods to undertake advanced tasks within predetermined parameters
- demonstrate the ability to integrate knowledge critically and systematically as well as the ability to model, simulate, predict and evaluate sequences of events even with limited information
- demonstrate the ability to develop and design products, processes and systems while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability to present his or her conclusions and the knowledge and arguments on which they are based in speech and writing to different audiences in both national and international contexts.

Judgement and approach
For a Degree of Master of Science in Engineering the student shall
- demonstrate the ability to make assessments informed by relevant disciplinary, social and ethical aspects as well as awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of the individual for how it is used, including both social and economic aspects and also environmental and occupational health and safety considerations, and
- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)
A requirement for the award of a Degree of Master of Science in Engineering is completion by the student of an independent project (degree project) for at least 30 credits (30 ECTS).

Miscellaneous
Specific requirements determined by each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Degree of Master of Science in Engineering.
To be awarded a Master of Science in Engineering at Chalmers students must have
- satisfied the requirements for courses in mathematics worth at least 30 credits
- satisfied course requirements in Environment and Sustainable Development, which will be included in the course programme, totalling 7.5 credits
- satisfied course requirements within the field of Humans, Technology and Society and which will be included in the course programme, totalling 7.5 credits
- satisfied course requirements totalling at least 90 credits at the advanced level, including a degree project worth at least 30 credits in subjects within the relevant specialization
- satisfied course requirements worth at least 90 credits examined at Chalmers of which at least 45 credits must be at the advanced level
- satisfied course requirements and achieved the training objectives specified in the respective syllabus

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: Unless otherwise prescribed in the course syllabus, a grade is to be awarded on completion of a course. The grade is to be determined by a teacher specially appointed by the higher education institution (an examiner).

The grades assigned are defined as Three, Four or Five. A higher figure signifies a better grade. The grade Three is the lowest pass grade. As well as the numbered scale, the scale Passed/Not Passed is used.
The grading system at the school of Architecture: courses are given on a Passed/Not Passed basis.
No overall grade is given for a degree and students are not ranked.

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ECTS Grading Table		
Chalmers grading system	Total number awarded in the reference group	Percentage of the total number
3 (Tre)	258 465	40.26 %
4 (Fyra)	243 126	37.86 %
5 (Fem)	140 400	21.87 %
Based on 3674 courses from the academic years 2000 - 2013		

4.5 Overall classification of the qualification (in original language): Not applicable for Swedish qualifications.

5. Information on the function of the qualification

5.1 Access to further study: The degree gives eligibility to studies within the third cycle.

5.2 Professional status (if applicable): Regulated education in accordance with the Swedish Degree Ordinance and covered by directive 2005/36/EC.

6. Additional information

6.1 Additional information: See Degree Certificate/Official Transcript

6.2 Further information sources:
Chalmers tekniska högskola
SE-412 96 Göteborg
www.chalmers.se

Universitets och högskolerådet (Swedish Council for Higher Education),
Nationella ramen för examina (National Qualifications Framework)
ENIC-NARIC Sweden, Swedish Council for Higher Education
www.uhr.se

7. Certification of the supplement

7.1 Date: 28 November 2014

7.2 Signature

Karolina Rythla

Karolina Rythla

7.3 Capacity: Officer of Degree
7.4 Official stamp or seal

CHALMERS UNIVERSITY OF TECHNOLOGY GOTHENBURG SWEDEN

8. Information on the national higher education system

Information on The Swedish Higher Education System cf enclosure.

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The Swedish Higher Education System

The following description is approved by the Swedish Council for Higher Education.

GENERAL

Higher education institutions have great autonomy in the organisation of studies, use of resources and general administration. The Government may award the status of *universitet* to higher education institutions that meet certain criteria. Independent higher education providers may apply for recognition by the Government, obtain degree awarding powers and receive state funds. Qualifications from all higher education institutions that are recognized by the Government have equal official value. The same law governs all state higher education institutions. All Swedish degrees are issued in accordance with the same degree ordinances.

QUALITY ASSURANCE

All programmes and major subjects were evaluated by the National Agency for Higher Education between years 2001 and 2012. The Swedish Higher Education Authority is since 1 January 2013 responsible for the quality assurance system for higher education. Evaluation reports are public.

ACCESS AND ADMISSION TO HIGHER EDUCATION

Higher education within all cycles has two strata of entry requirements: general and (additional) specific requirements. General eligibility to the first cycle is the same for all higher education.

General eligibility is attained either by completing an upper-secondary school programme, completed adult education at upper secondary school level or having the potential to benefit from the education, by virtue of other education, practical experience or other circumstances. The specific requirements vary according to the field of higher education and are in general expressed in terms of upper-secondary school qualifications in specific subjects. Restricted admission *(numerus clausus)* is used for all study programmes and courses.

DEGREE-AWARDING POWERS

Universities have the general right to award first-, second- and third-cycle qualifications. A small number of university colleges have been awarded the general right to award first and second cycle qualifications, as well as the right to award third cycle qualifications in specific domain/s. Other state university colleges have the right to award first cycle qualifications and *magisterexamen* but must apply to the Swedish Higher Education Authority for the right to award *masterexamen* and third cycle qualifications.

University colleges that are self-governing and independent, as well as the Swedish University of Agricultural Sciences (SLU) and the Swedish National Defence College, must apply to the Government for the entitlement to award all qualifications.

With regard to first- and second-cycle vocational or professional or qualifications in fine, applied and performing arts qualifications both state universities and university colleges must apply to the Swedish Higher Education Authority for degree awarding powers.

QUALIFICATIONS

All courses and study programmes are placed within one of three cycles: the first, second or third cycle. All qualifications are placed within one of the three cycles. Higher education within the first and second cycles is provided in the form of courses. Courses may be grouped together into programmes with varying levels of individual choice. Students themselves are also able to combine different courses towards a degree. A course syllabus is required for each course within the first and second cycle and a programme syllabus for each study programme. Educational cycle, number of credits and intended learning outcomes has to be specified for each course. Sweden has a system of credits (*högskolepoäng*); a normal 40-week academic year corresponds to 60 credits. The system is compatible with ECTS credits.

In the qualification ordinances, the Government has laid down which qualifications may be awarded and the scope, the objectives as well as intended learning outcomes for these qualifications. In the Swedish higher education system there are generally no intermediate qualifications. All qualifications are regarded as final, even if there is a possibility to continue studying. There are three categories of qualifications: 1. general, 2. in fine, applied and performing arts and 3. professional qualifications. Translations into English of all titles of qualifications are regulated at the national level. An institution of higher education may decide to add a prefix to a qualification title e.g. *filosofie kandidatexamen* or *medicine doktorsexamen* or/and add a major field of studies e.g. *civilingenjörsexamen i maskinteknik*.

Swedish Council for Higher Education

GENERAL QUALIFICATIONS

First cycle:

1. **Högskoleexamen** (Higher Education Diploma) requires 120 credits and a diploma project.
2. **Kandidatexamen** (Degree of Bachelor) requires 180 credits in a defined specialisation determined by each higher education institution itself. At least 90 credits, including an independent project of 15 credits, with in-depth studies have to be completed in the main field of study.

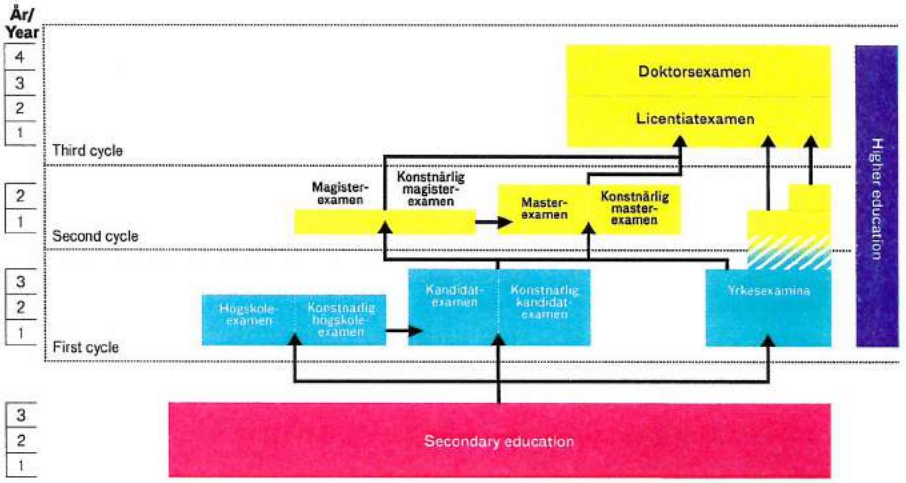
Second cycle:

1. **Magisterexamen** (Degree of Master (60 credits)) requires a defined specialisation determined by each higher education institution itself. At least 30 credits have to be completed in the main field of study including an independent project of 15 credits. In addition, normally the student must hold either a *kandidatexamen* or a professional degree of at least 180 credits or an equivalent foreign degree.
2. **Masterexamen** (Degree of Master (120 credits)) requires a defined specialisation determined by each higher education institution itself. At least 60 credits have to be completed in the main field of study including an independent project of at least 30 credits. In addition, in general, the student must hold either a *kandidatexamen* or a professional degree of at least 180 credits or an equivalent foreign degree.

General admission requirements to second-cycle studies are: qualification within the first cycle of at least 180 credits or a corresponding foreign qualification. In addition, admission may be granted to an applicant who has the potential to benefit from the education, by virtue of other educational achievements, practical experience or other circumstances.

Qualifications in fine, applied and performing arts

Qualifications in fine, applied and performing arts are awarded within all three cycles. Within the first cycle: *konstnärlig högskoleexamen* (Higher Education Diploma) and *konstnärlig kandidatexamen* (Degree of Bachelor of Fine Arts), within the second cycle: *konstnärlig magisterexamen* (Degree of Master of Fine Arts (60 credits)) and *konstnärlig masterexamen* (Degree of Master of Fine Arts (120 credits)). Two third-cycle qualifications are awarded: *konstnärlig licentiatexamen* (Degree of Licentiate) and *konstnärlig doktorsexamen* (Degree of Doctor).



The Swedish Higher Education System

Professional qualifications

Professional qualifications are awarded in the fields of engineering, health care, agriculture, law, education, etc. Professional qualifications may be offered within either the first or the second cycle. With a few exceptions, general entry requirements to professional degrees are the same as to general first-cycle qualification. Programmes leading to professional qualifications may vary in length depending on their content and may stretch over two cycles.

Third cycle:

The higher education institutions decide which subjects may be offered within the third cycle. For every subject, a general study plan should be drawn up. The study plan must state the principal organisation of the studies, the specific admission requirements and other necessary regulations.

Two qualifications are offered within the third cycle:

1. **Licentiatexamen** (Degree of Licentiate) requires at least 120 credits including a thesis of at least 60 credits. A higher education institution may also decide that a licentiatexamen can be awarded as an intermediate degree towards doktorsexamen.
2. **Doktorsexamen** (Degree of Doctor) requires 240 credits including a thesis of at least 120 credits. The thesis has to be defended publicly.

For admission to the third cycle the applicant has to be deemed to have ability to benefit from the education and meet the general requirements to the third cycle:

1. a second cycle qualification
2. completed course requirements of at least 240 credits of which 60 credits within the second cycle or
3. equivalent level of knowledge acquired in Sweden or abroad, as well as specific requirements at the institutional level.

Transitional provisions:
Rules for admission to the third cycle were changed from 1 July 2007. A person who met general requirements for admission before 1 July 2007 should be considered as eligible for admission until 30 June 2015. The general entry requirements before 1 July 2007 were a completed undergraduate programme of at least 120 credits (equivalent to 180 current higher education credits) or largely equivalent knowledge acquired in some other system in this country or abroad.

Grading

There is no national grading system in Sweden. The higher education institutions may determine which grading system is to be used. No overall grade is given for a degree and students are not ranked. ■

Production The Swedish Council for Higher Education (Universitets- och högskolerådet), May 2013