



EXAMENSBEVIS

DEGREE CERTIFICATE

Miguel Castano Arranz

1981-12-31-4755

HAR PÅ FORSKARNIVÅ AVLAGT/
HAS BEEN AWARDED THE THIRD CYCLE

TEKNOLOGIE LICENTIATEXAMEN

LICENTIATE OF ENGINEERING

INOM ÄMNET REGLERTEKNIK
IN THE SUBJECT AUTOMATIC CONTROL

Luleå tekniska universitet/*Luleå University of Technology*

Examensdatum/*Date of Graduation*

15 december 2010 / 15 December 2010

Johan Sterte
Rector/President



EXAMENSBEVIS

DEGREE CERTIFICATE

MIGUEL CASTANO ARRANZ

1981-12-31-4755

Har den **15 december 2010**

avlagt **teknologie licentiatexamen** på forskarnivå omfattande **120 högskolepoäng** i enlighet med bestämmelserna i högskoleförordningen (SFS 1993:100 med ändring 2006:1053)

Has on **15 December 2010**

been awarded the third cycle **Licentiate of Engineering 120 credits**, in accordance with the regulations governing Swedish Higher Education (SFS 1993:100 and the amendment 2006:1053)

Inom ämnet
In the subject

Reglerteknik
Automatic Control

Och har författat och offentligt redovisat en
licensiatuppsats med titeln/

Robust Methods for Control Structure Selection in Paper Making Processes

And has written and publicly defended a scientific thesis with the title

Robust Methods for Control Structure Selection in Paper Making Processes

Handledare/Supervisor

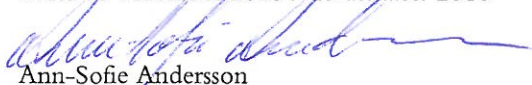
Professor/Professor Thomas Gustafsson

Biträdande handledare/Assistant Supervisor

Forskarassistent/Research Assistant Wolfgang Birk

Prov <i>Examination</i>	Högskolepoäng <i>Credits</i>	Examinator <i>Examiner</i>
Olinjära och optimala system <i>Nonlinear and Optimal Systems</i>	7.5	Docent/Associate Professor Andreas Johansson
Neuronnät <i>Artificial Neural Networks</i>	7.5	Professor/Professor Lennart Gustafsson
Cellulosa och pappersteknik <i>Cellulose and Paper Technology</i>	4.0	Forskarassistent/Research Assistant Mattias Grahn
Statistiska metoder och försöksplanering <i>Statistical methods and experimental design</i>	7.5	Professor/Professor Kerstin Vännman
Modellering och simulering av icke linjära dynamiska system <i>Measuring, Modelling and Simulation of (Non) linear Dynamic Systems</i>	10.0	Professor/Professor Johan Schoukens, Vrije Universiteit, Brussel, Belgien.
Design av regulatorstrukturer för multivariabla system <i>Control Configuration Selection for Multivariable Plants</i>	3.5	Professor/Professor Thomas Gustafsson
Avhandlingspoäng <i>Thesis</i>	80.0	Professor/Professor Thomas Gustafsson
Summa/Total sum	120.0 högskolepoäng/Credits	

Luleå 15 december 2010 / 15 december 2010



Ann-Sofie Andersson
Examenshandläggare/Degree Evaluation Officer

60 högskolepoäng motsvarar ett års heltidsstudier.
60 Higher Education Credits (HE Credits) are equivalent to one academic year of fulltime studies.

Betygsgrad/ The Grades:

För denna prov ges endast betyget "Godkänd"/ The only grade awarded is "Pass".

Prägel/University Stamp
(Framträder ej på kopia)/
(Does not appear on the copy)



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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 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:**
Castano Arranz
- 1.2 **Given name:**
Miguel
- 1.3 **Date of birth (day/month/year):**
31 December 1981
- 1.4 **Student identification number or code (if available):**
811231-4755

2. INFORMATION IDENTIFYING THE QUALIFICATION

- 2.1 **Name of qualification and (if applicable) title conferred (in original language):**
Teknologie licentiatexamen
- 2.2 **Main field(s) of study for the qualification:**
Automatic Control.
- 2.3 **Name and status of awarding institution (in original language):**
Luleå tekniska universitet, (state higher education institution with status of university)
- 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:**
Mainly English

3. INFORMATION ON THE LEVEL OF THE QUALIFICATION

- 3.1 **Level of qualification:**
Third cycle (doctoral studies)

For more information on higher education in Sweden, please see point 8.
- 3.2 **Official length of programme:**
A Licentiate requires 120 credits.

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.

(HEO Chapter 6, Section 2)

3.3 Access requirement(s):

The requirements (after 1 July 2007) for admission to doctoral studies

(HEO Chapter 7, Section 39)

A person has basic eligibility for third cycle education if he or she

- has taken a second cycle qualification,
- has completed course requirements of at least 240 credits, including at least 60 credits at second cycle, or
- has acquired essentially corresponding knowledge in some other way in Sweden or abroad.

The faculty board may permit an exemption from the requirement of basic eligibility in the case of an individual applicant, if there are special grounds.

The requirements (before 1 July 2007) for admission to doctoral studies

1. has basic eligibility and the special eligibility that the faculty board may have prescribed, and
2. is deemed to have the ability in other respects that is needed to benefit from the education.

For admission to doctoral programme undergraduate qualifications of at least 120 credits are required.

Furthermore, the appropriate faculty board may stipulate additional requirements for admission.

Admission to postgraduate studies after 1 July 2007 can be accepted according to the requirements above (before 1 July 2007) until year 2015.

Local requirements

The specific eligibility for every subject, in which post-graduate studies are offered, is made clear in a general study plan that is determined by the Faculty Board at Luleå University of Technology.

4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1 Mode of study:

Full-time equivalent.

4.2 Programme requirements:

Scope

A Licentiate is awarded either after the student has completed a study programme of at least 120 credits in a subject in which third-cycle teaching is offered or after a third-cycle student has completed one part comprising at least 120 credits of a study programme intended to conclude with the award of a PhD, if a higher education institution decides that a licentiate of this kind may be awarded at the institution.

Outcomes

Knowledge and understanding

For a Licentiate the third-cycle student shall have:

- demonstrated knowledge and understanding in the field of research including current specialist knowledge in a limited area of this field as well as specialised knowledge of research methodology in general and the methods of the specific field of research in particular.

Competence and skills

For a Licentiate the third-cycle student shall have:

- demonstrated the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake a limited piece of research and other qualified tasks within predetermined time frames in order to contribute to the formation of knowledge as well as to evaluate this work
- demonstrated the ability in both national and international contexts to present and discuss research and research findings in speech and writing and in dialogue with the academic community and society in general, and
- demonstrated the skills required to participate autonomously in research and development work and to work autonomously in some other qualified capacity.

Judgement and approach

For a Licentiate the third-cycle student shall have:

- demonstrated the ability to make assessments of ethical aspects of his or her own research
- demonstrated insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrated the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Thesis

For a Licentiate the third-cycle student shall have been awarded a pass grade for a research thesis of at least 60 credits.

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 Licentiate with a defined specialisation.

Local requirements

A licentiate is attained either by the post-graduate student concluding a programme of at least 120 credits in a subject or by the post-graduate student completing a part giving at least 120 credits of a programme that will conclude with a doctorate. The goals for a licentiate are to have been attained and an academic thesis of at least 60 credits shall have been approved. A post-graduate student, who has been admitted to a licentiate programme and who wishes to continue his or her studies to attain a doctorate after receiving his/her licentiate degree, must make a new application for the latter part of the doctorate programme.

There shall be a general study programme determined by the Faculty Board for every subject in which post-graduate studies are offered (HEO Chapter 6, Section 34). This general study programme shall state the programmes contents and arrangement, the specific admission requirements, the bases for assessment that apply in respect of selection for admission to the programme, the examinations included in the programme, and whether it is possible conclude part of the programme with a licentiate degree.

4.3 Programme details (e.g. modules or units studied), and the individual grades/marks/credits obtained:

See Degree Certificate

4.4 Grading scheme and, if available, grade distribution guidance:

See Degree Certificate

4.5 Overall classification of the qualification (in original language):

Not applicable for Swedish degrees.

5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1 Access to further study:

Eligible for further studies at the third level.

For more information on Higher Education in Sweden, please see point 8.

5.2 Professional status (if applicable):

No special information is indicated; gives access to employment.

6. ADDITIONAL INFORMATION

6.1 Additional information:

None.

6.2 Further information sources:

Luleå University of Technology
SE-971 87 Luleå
Phone: +46(0)920 49 10 00
Fax: +46(0)920-49 13 99
<http://www.ltu.se>

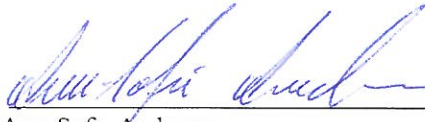
Swedish National Agency for Higher Education
the Swedish ENIC/NARIC Office
Box 7851
SE-103 99 Stockholm
<http://www.hsv.se>

7. CERTIFICATION OF THE SUPPLEMENT

7.1 Date:

15 December 2010

7.2 Signature



Ann-Sofie Andersson

7.3 Capacity:

Administrative Assistant

7.4 Official stamp or seal



8. INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

Information on the Swedish higher education system of enclosure