

Diplom

Civilingeniør

Rikke Rold Bateman

CPR-NR.

051189-1426

DATE OF BIRTH

5 November 1989

AKADEMISK GRAD

Civilingeniør, cand.polyt.

DEGREE

Master of Science in Engineering

GRADEN ER TILDELT DEN

12. juli 2016

DEGREE AWARDED

12 July 2016

RETNINGSBETEGNELSE

Elektroteknologi

GENERAL ENGINEERING FIELD

Electrical Engineering



Anders O. Bjarklev

Rektor

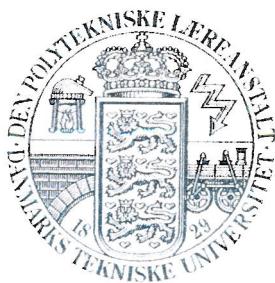
President



Martin P. Bendsøe

Dekan

Dean



Rikke Rold Bateman, CPR-nr. 051189-1426

har bestået eksamen som civilingeniør med nedenstående resultater:

År	ECTS-point		7-trinsskala	ECTS-skala
Kandidatspeciale				
S16	30,0	Institut for Elektroteknologi Funktionsorienteret modellering og overvågning af robotsystem	12	A
Kurser				
V15	5,0	Syntese i elektroteknologi	BE	
V14	10,0	Teknologi, økonomi, ledelse og organisation	10	B
V14	5,0	Robotteknik	12	A
V14	10,0	Reguleringsteknik 2	4	D
V14	5,0	Projekter i praktisk regulering	7	C
Meritoverførte kurser				
V15	59,5	Kurser meritoverført fra Korea Advanced Institute of Science and Technology (KAIST), Taejon, Republikken Korea	BE	

Rikke Rold Bateman, CPR-nr. 051189-1426

Den adgangsgivende eksamen til denne kandidatuddannelse var en diplomingeniøruddannelse.

Uddannelsen til civilingeniør er normeret til 120 ECTS-point, svarende til 2 års studium.
Opnået pointsum: 124,5 ECTS-point.

Bedømmelsen sker efter følgende karakterskala:

- 7-trinsskalaen med trinene -3 00 02 4 7 10 12
- bestået/ikke-bestået


Marianne Methling
Udannelse og Studerende


Jørgen Jensen
Studiechef

Rikke Rold Bateman, civil reg. no. 051189-1426

has passed the examination for the degree Master of Science in Engineering.

Year	ECTS credits		7-point grading scale	ECTS scale
Master Thesis				
S16	30.0	Department of Electrical Engineering Functional Modelling and Monitoring of a Robotic System	12	A
Courses				
W15	5.0	Synthesis in Elektrotechnology	PA	
W14	10.0	Technology, Economics, Management and Organisation	10	B
W14	5.0	Robotics	12	A
W14	10.0	Linear Control Design 2	4	D
W14	5.0	Projects in Control Practice	7	C
Transferred courses				
W15	59.5	Courses transferred from Korea Advanced Institute of Science and Technology (KAIST), Taejon, Korea, Republic of	PA	

Rikke Rold Bateman, Civil Reg. No. 051189-1426

Before enrolling at this graduate program, this candidate had obtained the degree of Bachelor of Engineering.

To obtain the degree of Master of Science in Engineering 120 ECTS credits are required corresponding to 2 years of study.

The sum of ECTS credits obtained is 124.5.

The scale of marks used is:

- 7-point grading scale with the marks: -3 00 02 4 7 10 12
- PA/FA for passed/failed.


Marianne Methling
Office of registrar


Jørgen Jensen
Head of study division

Diploma Supplement

This Diploma Supplement follows the model developed by the European Commission, the 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.

HOLDER OF THE QUALIFICATION

Family name(s): **Bateman**

Given name(s): **Rikke Rold**

Date of birth: **5 November 1989**

Civil registration number: **051189-1426**

THE QUALIFICATION

Name of qualification and title conferred (in Danish): **Civilingeniør, cand.polyt.**

Name of qualification and title conferred (in English): **Master of Science in Engineering**

DATE OF AWARD **12 July 2016**

MAIN FIELD OF STUDY **Electrical Engineering**

The main field of study mentioned above is the formal specialisation obtained during the last part of the graduates' studies as described in the programme requirements below. If the graduate does not have a formal specialisation, Engineering is indicated as the main field of study.

NAME AND STATUS OF AWARDING INSTITUTION

The Technical University of Denmark

DTU is a state recognised and state-financed higher education institution which is regulated according to the University Act, Act no. 280 of 21 March 2006

LANGUAGE(S) OF INSTRUCTION/EXAMINATION: DANISH AND ENGLISH

Courses offered at the Bachelor of Engineering programmes are primarily taught in Danish. Elective courses offered at the programmes can either be Bachelor of Engineering, Bachelor of Science in Engineering or Master of Science in Engineering courses. Master courses are taught in English. A large part of the written courses material is in English at all three programmes. The language of examination of the course is the same as the language of instruction.

LEVEL OF THE QUALIFICATION

Master programme

Official length of the programme: 2 years (120 ECTS credits). One year corresponds to 60 ECTS credits, each credit corresponding to a total workload of 28 hours, classes, preparation, report drafting and exams included.

ACCESS REQUIREMENTS

Admission to the two-year master programme requires a BSc Eng in the same field as the MSc or a B Eng in the same field and with specific requirements to the student's choice of electives at the B Eng

CONTENTS AND RESULTS GAINED

Mode of study: Full time study programme equivalent to 120 ECTS credits

PROGRAMME REQUIREMENTS

The two-year master programme in engineering is research-based and is formed by the following elements

- A specialisation within the main field of study
- Professional core competencies
- Elective courses
- A master thesis with a workload corresponding to 30 to 50 ECTS points

PROGRAMME DETAILS AND INDIVIDUAL GRADES/MARKS/CREDITS OBTAINED

Please refer to the attached grade transcript.

OVERALL CLASSIFICATION OF THE QUALIFICATION:

Not applicable for Danish qualifications.

THE FUNCTION OF THE QUALIFICATION

Access to further study:

The master degree qualifies for application to Ph D studies. Admission is subject to approval by the institution.

PROFESSIONAL STATUS:

The master degree in engineering is a research-based, internationally oriented graduate programme, which provides the graduate with:

- Advanced knowledge of science: i.e. thorough understanding of axiomatic and deductive methods of mathematics, understanding of laws of nature and of scientific methods in general.
- Advanced technological knowledge and qualifications at a graduate level within a specific field of technology
- An ability to use and formulate mathematical models to describe physical and technical processes and to fit empirical data with a relevant mathematical model.
- An ability to work with an open set of problems related to the specific field of technology in question and to consider these in a broad societal context.
- An ability to cooperate and work in teams comprising representatives from various professional backgrounds.
- A highly specialised knowledge and ability to work independently with research within a specific field of study.

ADDITIONAL INFORMATION:

DTU was established by the discoverer of electromagnetism H. C. Ørsted in 1829 and is one of Northern Europe's largest engineering research and teaching institutions specialising in the field of engineering. DTU has almost 7.000 students participating in bachelor and master degree programmes in engineering, health science or food science and technology. In addition, the University has more than 1050 PhD students and a number of guest students and students at open university. The university has a total institutional staff of 4500.

All degree programmes at the Technical University of Denmark are approved by the Danish Ministry of Education and/or the Danish Ministry of Science, Technology and Innovation.

FURTHER INFORMATION SOURCES:

For further information in English on study programmes, course contents etc. please consult the web site of the Technical University of Denmark at www.dtu.dk or contact: Technical University of Denmark, Anker Engelundsvej 1, DK-2800 Kongens Lyngby, Denmark. Tel.: (+45) 4525 2525. E-mail: dtu@adm.dtu.dk.

CERTIFICATION OF THE SUPPLEMENT



Marianne Methling
Office of registrar

A handwritten signature in blue ink, which appears to read "Marianne Methling". Below the signature, the name "Marianne Methling" is printed in a standard black font, followed by "Office of registrar" in a smaller font.

The Danish Higher Education System

June 2010

This description of the Danish Higher Education System has been approved by the Danish Ministry of Education, the Ministry of Science, Technology and Innovation and the Ministry of Culture. Public higher education institutions in Denmark are governed by national legislation concerning degree structures, teacher qualifications and examinations. All programmes are accredited by national, independent accreditation agencies and the Accreditation Council.

Higher education institutions

Higher education is offered by four types of higher education institutions and regulated by three Ministries:

- Academies of Professional Higher Education (Erhvervsakademi) and University Colleges (Professionshøjskole) are regulated by the Ministry of Education and offer professionally oriented first cycle degree programmes.
- Research universities (Universitet) are regulated by the Ministry of Science, Technology and Innovation and offer first, second and third cycle degree programmes in all academic disciplines.
- A number of university level institutions are regulated by the Ministry of Culture and offer first, second and third cycle degree programmes in subject fields such as architecture, design, music and fine and performing arts.
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Overview of degrees in the Danish Higher Education System

Danish higher education institutions use the European Credit Transfer System (ECTS) for measuring study activities. 60 ECTS correspond to one year of full-time study.

Danish qualifications levels	Ordinary higher education degrees	Adult/Continuing higher education degrees	Qualifications Framework for the European Higher Education Area - Bologna Framework	European/National Qualifications Framework for Lifelong Learning - EQF/NQF
Academy Profession level	Academy Profession degree (90-150 ECTS)	Academy Profession degree (60 ECTS)	Short cycle	Level 5
Bachelor's level	Professional Bachelor's degree (180-240 ECTS)*	Diploma degree (60 ECTS)	First cycle	Level 6
	Bachelor's degree (within fine arts) (180 ECTS)			
	Bachelor's degree (180 ECTS)			
Master's level	Master's degree (within fine arts) (120-180 ECTS)	Master degree (60-90 ECTS)	Second cycle	Level 7
	Master's degree (120 ECTS)**			
PhD level	PhD degree (180 ECTS)		Third cycle	Level 8

* Can be obtained through a full regular bachelor's programme (180-240 ECTS) or a top up bachelor's programme (90 ECTS) following an Academy Profession degree. A few Professional Bachelor programmes are 270 ECTS.

** A few Master's programmes are up to 180 ECTS.

Qualification framework

The Danish qualification levels form the basis for the Danish National Qualifications Framework for Higher Education, which is certified in accordance with the overarching Bologna Framework according to the principles adopted by the European Ministers of Higher Education. Danish higher education qualifications at levels 5-8 in the Danish Qualifications Framework for Lifelong Learning (NQF) are also compatible with the levels 5-8 in the European Qualifications Framework (EQF).

Admission and progression

General access to higher education in Denmark requires a secondary school leaving examination or comparable qualifications. Admission to some particular programmes requires entrance examination or submission of a portfolio of artistic work.

Completion of a short cycle degree qualifies students for admission to a first cycle degree. Degree holders with a short cycle Academy Profession degree can obtain a Professional Bachelor's degree within the same field of study with a top up programme (90 ECTS). Completion of a first cycle degree qualifies students for admission to the second cycle.

Ordinary Higher Education degrees

The Academy Profession degree is awarded after 90-150 ECTS and includes a period of work placement of at least 15 ECTS. The programmes are development-based and combine theoretical studies with a practical approach. Programmes are, among others, offered within Marketing Management, Computer Science and Chemical and Biotechnical Science. The Danish title is field of study followed by the abbreviation *AK* and the English title is *AP Graduate in* [field of study].

The Professional Bachelor's degree is awarded after 180-240 ECTS and includes a period of work placement of at least 30 ECTS. The programmes are professional higher education programmes at bachelor level. They are development-based and combine theoretical studies with an applied approach. Examples of professional bachelor degree holders are nurses, primary and lower secondary school teachers and certain types of engineers. The Danish title is *Professionsbachelor i* [field of study] and the English title is *Bachelor of* [field of study].

The Bachelor's degree from a university is awarded after completion of a 3-year programme (180 ECTS). The programmes are research-based and are offered in all scientific fields. The Danish title is *Bachelor (BA) i* [field of study] or *Bachelor (BSc) i* [field of study] and the English title is *Bachelor of Arts (BA) in* [field of study] or *Bachelor of Science (BSc) in* [field of study].

The Bachelor's degree (within fine arts) is awarded after 180 ECTS. The programmes are based on research and artistic research. Programmes are offered within the arts. The Danish title is *Bachelor (BA) i* [field of study] or *Bachelor i musik (BMus)* [field of study] and the English title is *Bachelor of Arts (BA) in* [field of study] or *Bachelor of Music (BMus)* [field of study]. A higher education degree within theatre or filmmaking is awarded after 4 years of study (240 ECTS).

The Master's degree is awarded after 120 ECTS. The programmes are research-based and are offered in all scientific fields. The Danish title is abbreviated to *cand.[latin abbreviation of academic area] i* [field of study]. The English title is *Master of Arts (MA) in* [field of study] or *Master of Science (MSc) in* [field of study].

The Master's degree (within fine arts) is awarded after 120-180 ECTS. The programmes are based on research and artistic research. The Danish title is abbreviated to *cand.[latin abbreviation of academic area] [field of study]*. The English title is *Master of Arts (MA) in* [field of study] or *Master of Music (MMus) [field of study]*.

Music Academies offer a specialist degree of 2 to 4 years following the master's degree.

The PhD degree is awarded after 180 ECTS. PhD programmes are offered by the universities and some institutions under the Ministry of Culture.

Detailed descriptions of degrees and degree levels can be found in the Qualifications Framework for Danish Higher Education at www.iu.dk. Please consult the relevant Diploma Supplement for information about the learning outcome of the specific degrees.

Adult and continuing higher education

The programmes normally consist of 2 years of part-time study, equivalent to 1 year of full-time study (60 ECTS credits). Certain master programmes require 1½ years of full-time study (90 ECTS credits). Admission requirements are a relevant educational qualification and at least 2 years of relevant work experience.

Adult education qualifications are available at levels corresponding to those of the ordinary higher education system.

- The Academy Profession degree (*videregående voksenuddannelse*) is awarded after studies at short cycle level and gives access to diploma programmes.
- The Diploma degree (*diplomuddannelse*) is awarded after studies at first cycle level and gives access to master programmes.
- The Master degree (*masteruddannelse*) is awarded after studies at second cycle level.

The 7-point grading scale

The grading system used in all state-regulated education programmes as of September 2007 is the 7-point grading scale. The grading scale is compatible with the ECTS grading scale.

The 7-point grading scale	12	10	7	4	02	00	-3
The ECTS grading scale	A	B	C	D	E	Fx	F

Apart from the 7-point grading scale, pass/fail assessment may also be used. 02 is the minimum grade for passing an exam.

DTU - KAIST Dual Degree Master's Programmes

This insert is given to students who have completed one of the Dual Degree master's programmes offered by the Technical University of Denmark (DTU) and the Korean Advanced Institute of Science and Technology (KAIST).

The DTU and KAIST Alliance

The alliance between KAIST and DTU is aimed at making use of complementary competencies in research, education and technology development within green technologies. Education is an important part of the cooperation between KAIST and DTU and since 2009 eight joint MSc Dual Degrees have been established:

- Computer Science and Engineering
- Electrical Engineering
- Engineering Acoustics
- Engineering Design and Applied Mechanics
- Mathematical Modelling and Computation
- Offshore Wind Energy
- Photonics
- Telecommunications

Both DTU and KAIST are recognized internationally for their research-based programmes, excellence in research within the technical and natural sciences and the development of clean and sustainable energy technologies and systems.

DTU - KAIST Dual Degree Master's Programmes

Students graduating from a DTU-KAIST Dual Degree master's programme have followed a study track with one year of study at DTU and one year of study at KAIST. The Dual Degree master's programmes are all defined within complementary areas of expertise. Thus, a graduate from a Dual Degree master's programme has benefitted from the excellence of both universities.

Graduates from these programmes have obtained an international degree with focus on strong academic skills and experiences. The international element of the Dual Degrees gives the graduates a strong international perspective and network.

Programme Structure

The standard period of study is four semesters, which corresponds to 120 ECTS, consisting of three semesters of course work, and a master thesis that is usually written in the fourth semester.

A standard period of two consecutive semesters is taken at the host institution. For example, this can either be the first and the second semester (master thesis conducted at the home institution), the second and third semester (master thesis conducted at the home institution), or the third and fourth semester (master thesis conducted at the host institution).

Degrees Obtained

Upon graduation, the student will be awarded the Master of Science in Engineering from DTU and Master of Science from KAIST.

Grades from completed courses are listed in the academic transcripts from the two institutions.