Lukas Svarre Engedal c/o Johansson Ved Renden 27,1 2870 Dyssegård



Date 30.05.2016

It is hereby confirmed that Lukas Svarre Engedal, Civil Registration Number: 210790-2727, is enrolled as a student at University of Copenhagen.

Name of the education: Bachelor's programme

## The student graduated on 12.06.2013.

The student has passed the following subjects. The credits are shown in ECTS

		ECTS	
	Marks	Grade	Credits
Bachelor's programme, Physics	passed		180,0000
Bachelor, Major subject 120 ECTS, Physics	passed		120,0000
Physics Bsc Core Subjects	passed		120,0000
Bachelor Central Subjects	passed		120,0000
1. Year Mandatory Physics	passed		60,0000
1. Year Test	passed		60,0000
Mech1	passed		7,5000
Introduction to Mechanics and	10	В	7,5000
Relativity Theory			
Introduction to Math	passed		7,5000
Introduction to Mathematics for	12	A	7,5000
Science			
Linear Algebra	passed		7,5000
Linear Algebra in Science	10	В	7,5000
Mech2	passed		7,5000
Classical Mechanics	10	В	7,5000
Math F/Analysis 0	passed		7,5000
Mathematics for Physicists	10	В	7,5000
Thermodynamics and proj.	passed		7,5000
Thermodynamics and Project	7	C	7,5000
EM1	passed		7,5000
Electromagnetism	12	A	7,5000
Subject Group 1 or 2	passed		7,5000
Cosmology	10	В	7,5000

2. & 3. Year Mandatory Physics	passed		45,0000
EM2 (Physics 6)	passed		7,5000
Electrodynamics and Waves	7	С	7,5000
Quantum Mechanics 1 (Physics 5)	passed		7,5000
Quantum Mechanics 1	10	В	7,5000
Videnskabsteori	passed		7,5000
Theory of Science and Ethics for Physics	7	С	7,5000
QM2(Physics 8)	passed		7,5000
Quantum Mechanics 2	7	С	7,5000
Statistical Physics	passed		7,5000
Statistical Physics	4	D	7,5000
Subject Group 1 and 2	passed		7,5000
Introduction to Nuclear and Particle Physics	12	A	7,5000
Physics Bachelorproject	passed		15,0000
Bachelor Project in Physics	10	В	15,0000
Title: Investigating the Host Galaxy Contribution in Spectra of Active Galactic Nuclei with Simulaitons			·
Bachelor, Minor/elective subjects 30 ECTS, Physics	passed		22,5000
Physics Elective Module, 30 ECTS Outside Physics	passed		22,5000
Limited Elective Courses outside Physics	passed		22,5000
Bachelor Courses for Elective Module	passed		22,5000
Introduction to Atomic Physics	Passed		7,5000
Galaxies	4	D	7,5000
Planetary Systems and the Formation of Stars	Passed		7,5000
Bachelor, Minor/elective subjects 30 ECTS, Physics	passed		37,5000
30 ECTS Elective courses Free Subject	passed		37,5000
Free Elective Module	passed		37,5000
Physic Courses for Elective Module	passed		7,5000
Stellar Structure and Evolution	10	В	7,5000
Physics Other Electives 2	passed		7,5000
Observational Astrophysics	Passed		7,5000
Mathematics Elective Master Courses	passed		7,5000
Dynamical Systems and Chaos	7	С	7,5000
Elective Courses in Computer Science	passed		15,0000
Modelling in Science	12	А	7,5000
Programming and Problem Solving	10	В	7,5000

Name of the education: Master's programme

## The student has not graduated.

The student has passed the following subjects.

The credits are shown in ECTS

		ECTS	
	Marks	Grade	Credits
Master's programme, Physics			30,0000
Master, Major subject 120 ECTS, Physics			30,0000
Physics Msc Core Module 120 ECTS General Profile			30,0000
Physics Msc Core Module			30,0000
Elective Elements Within the subject	passed		30,0000
Elementary Particle Physics	4	D	7,5000
General Relativity and Cosmology	10	В	7,5000
Physics Courses Central Subject	passed		15,0000
Physics - Master Level Courses Elective Module	passed		15,0000
Relativistic Cosmology	4	D	7,5000
Astronomical Data Processing	Passed		7,5000
Optional Elements	passed		0,0000

Name of the education: Bachelor's programme

## The student has not graduated.

The student has passed the following subjects.

The credits are shown in ECTS

		ECTS	
	Marks	Grade	Credits
Bachelor's programme, Computer Science			150,0000
Bachelor, Major subject 120 ECTS, Computer Science			82,5000
Computer Science Core Courses 120 ECTS			82,5000
Computer Science Core Courses			82,5000
Computer Science 1. Year Mandatory Courses	passed		60,0000
1. Year Test	passed		60,0000
Programming and Problem Solving / Introduction to Programming & Object-	passed		15,0000
oriented Programming and Design Introduction to Programming & Object-oriented Programming and Design	passed		15,0000
Object-oriented Programming and	12	A	7,5000

Introduction to programming/Functional Programming   12	Design			
Introduction to Programming	Introduction to	passed		7,5000
Algorithms and Data Structures   12	programming/Functional Programming			
First Year Project in Computer Science   passed   15,0000   Project Course: System Development   10   B   15,0000   Discrete Mathematical Structures   passed   7,5000   Equivalent   Discrete Mathematical Structures   10   B   7,5000   Linear Algebra   passed   7,5000   Linear Algebra   passed   7,5000   Linear Algebra in Science   10   B   7,5000   Databases and webprogramming / passed   7,5000   datamining   Databases and Data Mining   12   A   7,5000   datamining   Databases and Data Mining   12   A   7,5000   Programmeringssprog   Titroduction to Compilers   12   A   7,5000   Programmeringsprog   Progr	Introduction to Programming	12	A	7,5000
Project Course: System Development   10	Algorithms and Data Structures	12	A	7,5000
Discrete Mathematical Structures   Passed   7,5000	First Year Project in Computer Science	passed		15,0000
Equivalent   Discrete Mathematical Structures   10	Project Course: System Development	10	В	15,0000
Discrete Mathematical Structures	Discrete Mathematical Structures	passed		7,5000
Linear Algebra in Science	Equivalent			
Linear Algebra in Science	Discrete Mathematical Structures	10	В	7,5000
Databases and webprogramming / passed 7,5000 datamining  Databases and Data Mining 12 A 7,5000  2. & 3. Year Mandatory 22,5000 Oversættere / implementering af passed 7,5000 programmeringssprog Introduction to Compilers 12 A 7,5000 Theory of Science for Computer Science Transferred from University of 7 C 0,0000 Copenhagen, Denmark Videnskabsteori og etik for fysikere Computer Architecture 12 A 7,5000 Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000 Eachelor, Minor/elective subjects 60 ECTS, passed 67,5000 Free Elective Module passed 67,5000 Physic Courses for Elective Module passed 67,5000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Cansulative Mechanics 10 Cansulative Mechanics 20 Cansu	Linear Algebra	passed		7,5000
Databases and Data Mining   12	Linear Algebra in Science	10	В	7,5000
Databases and Data Mining	Databases and webprogramming /	passed		7,5000
22,5000 Oversættere / implementering af passed 7,5000 programmeringssprog Introduction to Compilers 12 A 7,5000 Theory of Science for Computer Science Transferred from University of 7 C 0,0000 Copenhagen, Denmark Videnskabsteori og etik for fysikere Computer Architecture 12 A 7,5000 Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000 Eachelor tilvalg 60 ECTS passed 67,5000 Free Elective Module passed 67,5000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Electrodynamics and Project 7 C 7,5000 Relativity Theory Galaxies 12 A 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Cosmo	datamining			
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Introduction to Compilers 12 A 7,5000 Theory of Science for Computer Science Transferred from University of 7 C 0,0000 Copenhagen, Denmark Videnskabsteori og etik for fysikere Computer Architecture 12 A 7,5000 Human-Computer Interaction/Probability passed 7,5000 Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000 Bachelor, Minor/elective subjects 60 ECTS, passed 67,5000 Computer Science bachelor tilvalg 60 ECTS passed 67,5000 Free Elective Module passed 67,5000 Physic Courses for Elective Module passed 67,5000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Electromagnetism 10 B 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	2. & 3. Year Mandatory			22,5000
Theory of Science for Computer Science Transferred from University of 7 C 0,0000 Copenhagen, Denmark Videnskabsteori og etik for fysikere Computer Architecture 12 A 7,5000 Human-Computer Interaction/Probability Passed 7,5000 Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000 Bachelor, Minor/elective subjects 60 ECTS, Computer Science bachelor tilvalg 60 ECTS passed 67,5000 Free Elective Module passed 67,5000 Physic Courses for Elective Module passed 67,5000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Cosmology 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000		passed		7,5000
Science Transferred from University of 7 C 0,0000 Copenhagen, Denmark Videnskabsteori og etik for fysikere Computer Architecture 12 A 7,5000 Human-Computer Interaction/Probability Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000 Electrodynamics and Waves 7 C 7,5000 Free Elective Module Passed 67,5000 Electrodynamics and Waves 7 C 7,5000 Electrodynamics and Waves 7 C 7,5000 Electrodynamics and Project 7 C 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Computer Science 12 A 7,5000 Electromagnetism 12 A 7,5000 Computer Science 12 A 7,5000 Electromagnetism 12 A 7,5000 Electromagnetism 12 A 7,5000 Computer Science 14 D 8 7,5000 Computer Science 15 Cosmology 10 B 7,5000 Cosmology 10 B 7,500	Introduction to Compilers	12	A	7,5000
Copenhagen, Denmark Videnskabsteori og etik for fysikere Computer Architecture 12 A 7,5000 Human-Computer Interaction/Probability passed 7,5000 Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000  Bachelor, Minor/elective subjects 60 ECTS, passed 67,5000 Computer Science  bachelor tilvalg 60 ECTS passed 67,5000 Free Elective Module passed 67,5000 Physic Courses for Elective Module passed 67,5000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 1 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000				
Videnskabsteori og etik for fysikere Computer Architecture 12 A 7,5000 Human-Computer Interaction/Probability passed 7,5000 Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000  Bachelor, Minor/elective subjects 60 ECTS, passed 67,5000 Computer Science  bachelor tilvalg 60 ECTS passed 67,5000  Free Elective Module passed 67,5000 Physic Courses for Elective Module passed 60,0000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 1 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Transferred from University of	7	С	0,0000
Computer Architecture 12 A 7,5000 Human-Computer Interaction/Probability passed 7,5000 Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000  Bachelor, Minor/elective subjects 60 ECTS, Computer Science  bachelor tilvalg 60 ECTS passed 67,5000  Free Elective Module passed 67,5000  Physic Courses for Elective Module passed 60,0000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 1 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Copenhagen, Denmark			
Human-Computer Interaction/Probability Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000  Bachelor, Minor/elective subjects 60 ECTS, Passed 67,5000 Computer Science  bachelor tilvalg 60 ECTS passed 67,5000 Free Elective Module passed 67,5000 Physic Courses for Elective Module passed 60,0000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 1 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Videnskabsteori og etik for fysikere			
Theory and Statistics (HCI/SS) Probability Theory and Statistics 10 B 7,5000  Bachelor, Minor/elective subjects 60 ECTS, Computer Science  bachelor tilvalg 60 ECTS passed 67,5000  Free Elective Module passed 67,5000 Physic Courses for Elective Module passed 60,0000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Computer Architecture	12	A	7,5000
Probability Theory and Statistics 10 B 7,5000  Bachelor, Minor/elective subjects 60 ECTS, passed 67,5000  Computer Science  bachelor tilvalg 60 ECTS passed 67,5000  Free Elective Module passed 67,5000  Physic Courses for Elective Module passed 60,0000  Electrodynamics and Waves 7 C 7,5000  Introduction to Mechanics and 10 B 7,5000  Relativity Theory  Galaxies 4 D 7,5000  Thermodynamics and Project 7 C 7,5000  Electromagnetism 12 A 7,5000  Cosmology 10 B 7,5000  Classical Mechanics 1 10 B 7,5000  Quantum Mechanics 1 10 B 7,5000  Mathematics Elective Master Courses passed 7,5000	Human-Computer Interaction/Probability	passed		7,5000
Bachelor, Minor/elective subjects 60 ECTS, passed 67,5000 Computer Science  bachelor tilvalg 60 ECTS passed 67,5000 Free Elective Module passed 67,5000 Physic Courses for Elective Module passed 60,0000 Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 1 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Theory and Statistics (HCI/SS)			
Computer Science  bachelor tilvalg 60 ECTS passed 67,5000  Free Elective Module passed 67,5000  Physic Courses for Elective Module passed 60,0000  Electrodynamics and Waves 7 C 7,5000  Introduction to Mechanics and 10 B 7,5000  Relativity Theory  Galaxies 4 D 7,5000  Thermodynamics and Project 7 C 7,5000  Electromagnetism 12 A 7,5000  Cosmology 10 B 7,5000  Classical Mechanics 1 10 B 7,5000  Quantum Mechanics 1 10 B 7,5000  Mathematics Elective Master Courses passed 7,5000	Probability Theory and Statistics	10	В	7,5000
Free Elective Module passed 67,5000  Physic Courses for Elective Module passed 60,0000  Electrodynamics and Waves 7 C 7,5000  Introduction to Mechanics and 10 B 7,5000  Relativity Theory  Galaxies 4 D 7,5000  Thermodynamics and Project 7 C 7,5000  Electromagnetism 12 A 7,5000  Cosmology 10 B 7,5000  Classical Mechanics 10 B 7,5000  Quantum Mechanics 1 10 B 7,5000  Mathematics Elective Master Courses passed 7,5000		passed		67,5000
Physic Courses for Elective Module passed 60,0000  Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	bachelor tilvalg 60 ECTS	passed		67,5000
Electrodynamics and Waves 7 C 7,5000 Introduction to Mechanics and 10 B 7,5000 Relativity Theory Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Free Elective Module	passed		67,5000
Introduction to Mechanics and 10 B 7,5000 Relativity Theory  Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Physic Courses for Elective Module	passed		60,0000
Relativity Theory       4       D       7,5000         Thermodynamics and Project       7       C       7,5000         Electromagnetism       12       A       7,5000         Cosmology       10       B       7,5000         Classical Mechanics       10       B       7,5000         Quantum Mechanics 1       10       B       7,5000         Mathematics Elective Master Courses       passed       7,5000	Electrodynamics and Waves	7	С	7,5000
Galaxies 4 D 7,5000 Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Introduction to Mechanics and	10	В	7,5000
Thermodynamics and Project 7 C 7,5000 Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Relativity Theory			
Electromagnetism 12 A 7,5000 Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Galaxies	4	D	7,5000
Cosmology 10 B 7,5000 Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Thermodynamics and Project	7	C	7,5000
Classical Mechanics 10 B 7,5000 Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Electromagnetism	12	A	7,5000
Quantum Mechanics 1 10 B 7,5000 Mathematics Elective Master Courses passed 7,5000	Cosmology	10	В	7,5000
Mathematics Elective Master Courses passed 7,5000	Classical Mechanics	10	В	7,5000
- · · · · · · · · · · · · · · · · · · ·	Quantum Mechanics 1	10	В	7,5000
	Mathematics Elective Master Courses	passed		7,5000
	Mathematics for Physicists		В	

Name of the education: Master's programme

## The student has not graduated.

The student has passed the following subjects.

The credits are shown in ECTS

		ECTS	
	Marks	Grade	Credits
Master's programme, Computer Science			7,5000
Master, Major subject 120 ECTS, Computer Science			7,5000
General Profile in Computer Science 120 ECTS			7,5000
Elective Courses 15 ECTS			7,5000
MSc Courses	passed		7,5000
Astronomical Data Processing	Passed		7,5000