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Heikkilä Seppo Sakari  
 Otaniementie 17  
 Automaatiotekniikan laboratorio  
 02150 ESPOO

Student number 49690F  
 Date of birth 08.10.1979  
 Date of registration 03.07.1998

Enrolment Autumn 2011 Attending  
 Spring 2012 Attending

Degrees awarded Master of Science in Technology, Degree Programme in Electrical Engineering,  
 14.03.2005  
 Doctor of Science (Technology), 15.12.2011

Study right granted by Aalto University School of Science and Technology  
 Student's organisation Aalto University School of Electrical Engineering  
 Degree regulations Decree on University Degrees (794/2004)  
 Degree pursued Doctor of Science (Technology)  
 Degree programme Aalto Doctoral Programme in Electrical Engineering  
 Major/Research field Automation Technology  
 Module Studies in Supplementary Field  
 Validity 01.08.2008-15.12.2011

Code	Name	Cr	Grade	Date	Teacher
<b>COURSES COMPLETED</b>		<b>71,50</b>	<b>3,05</b>		
<b>COURSES</b>		<b>71,50</b>	<b>3,05</b>		
AS-84.4340	Postgraduate Course in Automation Technology P	5,00	Pass	11.04.2011	Jussi Suomela
AS-84.4340	Journal Writing and Review Postgraduate Course in Automation Technology P	9,00	5	13.07.2007	Aarne Halme, Arto Visala
Kie-98.191	Machine Vision in Mobile Robotics Swedish for Science and Technology 1	3,00	3	28.04.2003	Hanna Husu
Kie-98.2011	Spanish 1A	2,00	4	16.10.2007	Anna Ahlava
Kie-98.2012	Spanish 1B	2,00	4	11.12.2007	Anna Ahlava
Kie-98.2021	Spanish 2A	2,00	4	04.05.2009	Hanna Puhakka
Kie-98.2022	Spanish 2B	2,00	3	04.05.2009	Hanna Puhakka
Kie-98.2031	Spanish 3A	2,00	3	04.11.2009	Tanya Tynjälä
Kie-98.2032	Spanish 3B	2,00	2	14.01.2010	Hanna Puhakka
Kie-98.2041	Spanish 4A	2,00	5	02.03.2010	Hanna Puhakka
Kie-98.2042	Spanish 4B	2,00	2	05.05.2010	Hanna Puhakka
Kie-98.390	Portuguese 1	3,00	2	05.12.2003	Dorothea Simojoki
Mat-2.197	Philosophy and Systems Thinking (P) Elämänfilosofia ja systeemiäly	3,00	4	04.05.2005	Esa Saarinen
Mat-2.197	Philosophy and Systems Thinking (P) Soveltava filosofia ja systeemiäly	3,00	4	26.04.2004	Esa Saarinen
Mat-2.197	Philosophy and Systems Thinking (P) Philosophy as a Way of Life	3,00	4	20.05.2003	Esa Saarinen
S-0.9901	Research Methodology P	1,00	Pass	11.06.2009	Ari Sihvola
S-87.020	Electronics II	6,00	1	15.05.2001	K.Koli

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Code	Name	Cr	Grade	Date	Teacher
S-92.J	Postgraduate studies International Space University, yleinen osuus	1,50	Pass	01.09.2006	Marko Mäkyinen
S-96.Z	Postgraduate studies	3,00	Pass	22.12.2010	Ari Sihvola
T-106.435	Operating Systems Project	3,00	4	01.09.2003	Jorma Tarhio
T-76.601	Introduction to Software Engineering	4,50	1	29.01.2004	Casper Lassenius
Tik-61.231	Principles of Pattern Recognition	4,50	1	04.02.2002	Vuori
Tik-76.006	Information Technology, laboratory course	3,00	3	29.06.2000	Ensio

**DEGREES COMPLETED**

Code	Name	Cr (ocr)	Grade	Date	Teacher
<b>MASTER OF SCIENCE IN TECHNOLOGY</b>		<b>200,0</b>	<b>4,11</b>	<b>14.03.2005</b>	
<b>PART ONE OF THE DEGREE</b>					
<b>Part One of the Degree - With Extended Curriculum in Science</b>		<b>68,5</b>	<b>3,81</b>		
Ako-3.151	Physics, laboratory course, for students of electrical engineering	2,0	Pass	14.09.2001	Lahtinen
Kie-98.003	Examination of the Second Official Language	1,0	G	28.04.2003	Hanna Husu
Kie-98.104	Advanced English for Science and Technology 1	2,0	5	03.05.2002	Fowler
Mat-1.401	Basic Course in Mathematics L 1	6,0	4	16.12.1999	Eirola
Mat-1.402	Basic Course in Mathematics L 2	6,0	4	08.05.2000	Alestalo
Mat-1.403	Basic Course in Mathematics L 3	6,0	2	06.04.2002	Nevanlinna, Eirola
Mat-2.090	Applied Probability A	3,0	3	18.12.2001	Koljonen
S-104.322	Physics I, for students of electrical engineering	4,5	5	10.12.1999	M.Sopanen
S-104.323	Physics II, for students of electrical engineering	4,5	5	26.05.2000	H.Lipsanen
S-108.195	Fundamentals of Measurements	2,5	2	01.09.2003	Mikko Merimaa
S-26.002	Orientation Course for Studies of Electrical and Communications Engineering	1,0	Pass	07.02.2000	Räisänen
S-55.141	Circuit Analysis 1	3,0	4	09.12.1999	M.Valtonen
S-55.142	Circuit Analysis 2	3,0	4	19.05.2000	M.Valtonen
S-72.060	Signals and Systems	3,0	5	21.03.2002	S-G.Häggman
S-87.010	Electronics I	4,0	2	04.12.2000	V.Porra
S-88.110	Digital and Computer Technology, basic course	2,0	5	11.12.1999	Vuori
S-96.111	Static Field Theory	3,0	2	11.12.2000	A.Viitanen
TU-22.101	Introduction to Industrial Management	4,0	4	10.05.2000	Eloranta
Tik-76.020	Basic Course in Programming L1	5,0	5	22.01.2001	Hosseini
Tik-76.124	Computer as a Tool	1,0	5	13.09.1999	Ensio
Vie-98.220	Speech Communication	2,0	Pass	18.12.2000	Myllynen

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Code	Name	Cr (ocr)	Grade	Date	Teacher
<b>OPTIONS</b>					
<b>Option: Electrophysics</b>		<b>38,0</b>	<b>3,89</b>		
Kem-35.110	Principles and Applications of Chemistry	3,0	4	14.05.2002	Toivonen
Mat-1.404	Basic Course in Mathematics L 4	6,0	2	18.05.2001	Eirola
Mat-2.107	Computational Assignments in Applied Mathematics	1,0	Pass	27.12.2001	Mustajoki
S-108.181	Optics	2,0	3	14.12.2001	E.Ikonen
S-114.100	Computational Science P	3,0	5	14.12.2001	M.Karttunen
S-114.425	Physics III (Sf)	4,0	5	13.12.2000	J.Tulkki
S-114.426	Physics IV (Sf)	4,0	5	31.05.2001	J.Tulkki
S-69.101	Basic Course in Semiconductor Technology	3,0	3	10.12.2002	Juha Sinkkonen
S-89.101	Fundamentals of Acoustics I	2,0	2	18.12.2002	Matti Karjalainen
S-96.121	Dynamic Field Theory	3,0	5	19.03.2001	Viitanen
T-106.253	Data Structures and Algorithms Y	3,0	5	11.06.2002	Korhonen
T-61.246	Digital Signal Processing and Filtering	4,0	4	18.12.2001	Simula
<b>STUDIES IN MAJOR</b>					
<b>Space Technology</b>		<b>20,5</b>	<b>4,22</b>		
S-92.100	Space Physics	2,0	3	12.12.2002	Jukka Heikkinen
S-92.113	Spaceflight Instrumentation	3,0	5	17.12.2003	Simo Tauriainen
S-92.131	Remote Sensing	3,0	4	12.05.2003	Martti Hallikainen
S-92.145	Radio Astronomy	2,0	4	13.12.2002	Seppo Urpo
S-92.186	Laboratory Course in Space Technology	2,5	4	13.01.2004	Martti Hallikainen
S-92.192	Special Assignment in Space Technology	3,0	5	05.05.2004	Martti Hallikainen
S-92.205	Research Seminar on Space Technology	2,0	Pass	01.08.2003	Martti Hallikainen
T-61.231	Principles of Pattern Recognition (P)	3,0	4	23.02.2004	Timo Honkela
<b>STUDIES IN MINOR</b>					
<b>Automation and Control Technology</b>		<b>20,0</b>	<b>4,35</b>		
AS-116.120	Information Technology Applications in Automation	3,0	4	19.12.2003	Pekka Aarnio
AS-74.101	Computer Simulation	2,0	4	31.12.2003	Heikki Koivo
AS-74.111	Analogue Control	2,0	5	09.01.2003	Heikki Koivo
AS-74.112	Digital Control	2,0	4	08.05.2003	Kai Zenger
AS-84.128	Fundamentals of Automation and Control Technology	2,0	4	13.06.2002	Visala
AS-84.137	Robotics	2,0	4	07.06.2002	Forsman
AS-84.161	Digital Control and Signal Processing Methods (P)	3,0	5	16.12.2003	Aarne Halme, Arto Visala
AS-84.168	Digital Automation Systems	2,0	5	16.02.2004	Panu Harmo
AS-84.284	Project in Automation Technology	2,0	4	26.08.2003	Ilkka Leppänen
<b>STUDIES IN SECOND MINOR</b>					
<b>Software Systems</b>		<b>21,0</b>	<b>4,00</b>		
AS-0.100	Basic Course in C/C++ -programming	3,0	5	31.08.2001	Hannu Laine
T-106.233	Basic Course in Programming 2	4,0	5	03.06.2002	Sami Surakka
T-106.430	Operating Systems	3,0	3	12.05.2003	Jorma Tarhio
T-111.300	Computer Graphics	4,0	4	21.12.2002	Lauri Savioja
T-93.440	Introduction to Knowledge Engineering	4,0	3	06.10.2003	Markku Syrjänen
Tik-61.123	Computer Architecture	3,0	4	16.01.2002	Huttunen

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Code	Name	Cr (ocr)	Grade	Date	Teacher
<b>ELECTIVE STUDIES</b>					
<b>Other elective studies</b>		<b>7,0</b>	<b>4,71</b>		
Kie-98.118	German 1	2,0	4	04.12.2001	Elomaa
Mat-2.197	Philosophy and Systems Thinking (P) Soveltava filosofia, käsitteellinen ajattelu ja luova ongelmanratkaisu	2,0	5	28.05.2001	Saarinen
T-110.250	Fundamentals of Network Media	3,0	5	09.09.2002	Ursula Koivikko
<b>STUDY MODULE</b>					
<b>Master's thesis</b>		<b>20,0</b>	<b>5,00</b>		
AS-84.dipl	Master's Thesis Development of Laser Based Localisation Methods for Personal Navigation System- PeNa	20,0	5	14.03.2005	Aarne Halme
AS-84.kyps	Maturity Test	-	Pass	08.03.2005	Aarne Halme, Seija Koski
<b>Practical training</b>		<b>5,0</b>	<b>-</b>		
Harj-0.100	Working Environment Training	5,0	Pass	14.11.2000	

Code	Name	Cr	Grade	Date	Teacher
<b>DOCTOR OF SCIENCE (TECHNOLOGY)</b>				<b>15.12.2011</b>	
<b>STUDIES IN RESEARCH FIELD</b>					
<b>Automation Technology</b>		<b>45,00</b>	<b>3,93</b>		
AS-84.126	Machine Perception (P)	3,00	5	03.01.2003	Arto Visala
AS-84.145	Field and Service Robotics (P)	4,50	4	03.02.2003	Aarne Halme, Jussi Suomela
AS-84.146	Behaviour-based Robotics (P)	3,00	4	21.11.2003	Mika Vainio
AS-84.340	Postgraduate Course in Automation Technology (P)	7,50	5	14.06.2005	Aarne Halme
AS-84.4340	Stochastic Processes and Estimation Postgraduate Course in Automation Technology P	9,00	4	27.02.2007	Aarne Halme, Arto Visala
AS-84.J	Digital Signal Processing Postgraduate studies Neurorobotiikka -tutkimusseminaari, automaatiotekniikan laboratorion ja laskennallisen tekniikan laboratorion järjestämä	4,50	Pass	07.03.2006	Arto Visala
AS-84.J	Postgraduate studies ESA Aurora Student Competition	4,50	4	22.09.2003	Aarne Halme
Mat-2.111	Stochastic Processes (P)	4,50	3	29.12.2006	Jirka Poropudas
T-61.261	Principles of Neural Computing (P)	4,50	2	13.10.2003	Kimmo Raivio

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Code	Name	Cr	Grade	Date	Teacher
<b>STUDIES IN SUPPLEMENTARY FIELD</b>					
<b>Studies in Supplementary Field</b>		<b>31,50</b>	<b>-</b>		
<b>Space Technology</b>					
S-92.J	Postgraduate studies International Space University, Individual Project Work "Upgrade of Satellite Receiver Localisation System" (MSS-kurssin moduuli V)	6,00	Pass	01.09.2006	Marko Mäkynen
S-92.J	Postgraduate studies International Space University, MSS- kurssin moduuli IV	4,50	Pass	01.09.2006	Marko Mäkynen
S-92.J	Postgraduate studies International Space University, MSS- kurssin moduuli I	4,50	Pass	01.09.2006	Marko Mäkynen
S-92.J	Postgraduate studies International Space University, MSS- kurssin moduuli II	7,50	Pass	01.09.2006	Marko Mäkynen
S-92.J	Postgraduate studies International Space University, MSS- kurssin moduuli III	9,00	Pass	01.09.2006	Marko Mäkynen
<b>SCIENTIFIC PRACTICES AND PRINCIPLES</b>					
<b>Studies in Scientific Practices and Principles</b>		<b>1,50</b>	<b>1,00</b>		
S-88.J	Postgraduate studies Introduction to research methodology, Oulun yliopisto (Mämmelä)	1,50	1	26.05.2005	Iiro Hartimo
<b>OTHER</b>					
<b>Doctoral Dissertation</b>		<b>-</b>	<b>-</b>		
AS-84.T	Doctoral Dissertation	-	Pass	15.12.2011	Aarne Halme

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The extent of studies is measured in credits (cr). The average number of hours required in one academic year of studies, 1 600 hours, corresponds to 60 credits. One credit as calculated according to the previous credit system (ocr) indicates an input of approximately 40 hours of student work.

Grading: courses are graded either on a scale of 5 (highest), 4, 3, 2, 1 or on a scale of pass / fail. National Language Requirement Test: good knowledge (G) / satisfactory knowledge (S). Bachelor's thesis and modules to be included in the doctoral degrees (Technology and Architecture): pass with distinction (PwD) / pass (Pass).

Those courses which are graded 5, 4, 3, 2 and 1 are included in the credit-weighted average grade. Average grade has been calculated if the group includes at least two courses graded on a scale of 5-1 or the extent of the course/s graded on a scale of 5-1 is at least half of the extent of the group. If this provision is not met, average grade is not calculated. The average grades have been rounded to two decimals.

Weight 2 is indicated in brackets beside the grade. (School of Economics).