

2009-03-19

Utbildningens benämning (och alternativt läroinriktningens benämning)	Masterutbildning i rymdvetenskap och rymdteknik, 120 ECTS Master of Science in Space Science and Technology Program, 120 ECTS	Läsår 2009 / 2010
Fastställande	Fastställt datum Fastställt av Reviderat datum Reviderat av	2004-12-21 Dean of the Faculty of Science and Engineering
Examensbenämning (kan vara flera)	Svensk Examensbenämning Masterexamen i rymdteknik 	Engelsk Examensbenämning Master of Science with a Major in Space Technology
Inriktningar (kan vara flera)	Svensk benämning 	Engelsk benämning Dynamics and Control of Systems and Structures (CU, Cranfield, UK) Space Robotics and Automation (TKK, Helsinki, Finland) Automation, Control and Communication of Space Robotics (JMUW, Würzburg, Germany) Space Technology and Instrumentation (LTU, Kiruna, Sweden) Electrical Engineering and Informatics in the study field Control Engineering, Space Automation and Control (CTU, Prague, Czech Republic) Astrophysics, Space Science, Planetology, research oriented (UPS, Toulouse, France) Space Technique and Instrumentation, professional oriented (UPS, Toulouse, France) Atmospheric and Space Science, research oriented (LTU, Kiruna, Sweden)
Utbildningens omfattning	Poäng (endast ett alternativ)	120 ECTS - /
Utbildningens innehåll och upplägg	The objective of the Joint European Master Program in Space Science and Technology is to combine the great diversity of space expertise at six European universities to a common platform of competence within the guidelines of the Bologna process. European and Third-country students will in the framework of SpaceMaster have the possibility to study space science and technology at leading universities in Europe in a research oriented environment. SpaceMaster will bring together as a	

2009-03-19

	<p>core group students from the whole world to share the existing space competence, to develop it together and distribute it to benefit the international space industry and research community. The 120 ECTS are divided as following:</p> <ul style="list-style-type: none"> - compulsory core modules 60 ECTS (JMUW, LTU) - optional modules up to 30 ECTS (JMUW, LTU, TKK, UPS, CTU), 15 ECTS (CU) - Master's thesis min 30 ECTS (JMUW, LTU, TKK, UPS, CTU), 45 ECTS (CU)
Behörighet/Urval	<p>Successful completion of an engineering program or a Bachelor's degree with a minimum of 180 ECTS in the areas of physics, space physics, astronomy, engineering, electronics, mechatronics, space technology, mathematics, computer science or equivalent. A minimum of 22.5 ECTS in mathematics at the university level is required. Students from non-EU countries are required English proficiency tests provided by Cambridge Certificate A-C, TOEFL test (score 580/237/92 or higher), IELTS test (score 6.5 or higher with a part test of 5.5) or equivalent test. Students from EU countries are required to have obtained a pass in an English language course in their upper secondary school leaving certificate.</p>

2009-03-19

Obligatoriska kurser och poängfördelning					
Kurskod	Benämning på kurs (eller kursgrupp)	Poäng	Ev. övergångsregel	Kurskod	Från/Till Termin
	Introduction in Space Physics	8 ECTS			HT09 Würzburg
	Spacecraft System Design	8 ECTS			HT09 Würzburg
	Space Dynamics	4 ECTS			HT09 Würzburg
	The Object-oriented Approach and Java Programming	3.5 ECTS			HT09 Würzburg
	Internet Technologies	3.5 ECTS			HT09 Würzburg
	Data Bases	3.5 ECTS			HT09 Würzburg
	CanSat	3 ECTS			HT09 Würzburg
R7004R	Spacecraft Environment Interaction	7.5 ECTS			VT10 Kiruna
E7003R	Electronics in Space	7.5 ECTS			VT10 Kiruna
R7002R	Image Processing and Remote Sensing	7.5 ECTS			VT10 Kiruna
F7003R	Optics- and Radar-based Observations	7.5 ECTS			VT10 Kiruna

2009-03-19

	<p>Optional tracks: Space Robotics (TKK) Automation, Control and Communication of Space Robotics (JMUW) Space Technology and Instrumentation (LTU) Space Automation and Control (CTU) Astrophysics, Space Science, Planetology, research oriented (UPS) Space Technique and Instrumentation, professional oriented (UPS) Atmospheric and Space Physics, research oriented (LTU) Dynamics and Control of Systems and Structures (CU)</p>	<p>Up to 30 ECTS for each track at LTU, JMUW, UPS, CTU, TKK.</p> <p>15 ECTS at CU</p>	<p>HT10</p>
New	Master Thesis preparation	<p>Min 30 ECTS (JMUW, LTU,UPS, CTU, TKK) 45 ECTS (CU)</p>	<p>VT11</p>
<p>Poäng valfria kurser 0 (endast ett alternativ)</p>			

Läsordning för de obligatoriska kurserna

Åk/Termin nr	Profil eller Inriktning	Antagna		Ges läsår			
1 st year students		2009		2009 / 2010			
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
	Introduction in Space Physics	8 ECTS	x	x			Würzburg Comulsory
	Spacecraft System Design	8 ECTS	x	x			Würzburg Compulsor

2009-03-19

							y
	Space Dynamics	4 ECTS	x	x			Compulsory
	Internet Technologies	3.5 ECTS	x	x			Würzburg Optional
	Data Bases	3.5 ECTS	x	x			Würzburg Optional
	The Object.-oriented Approach and Java Programming	3.5 ECTS	x	x			Würzburg Optional
	CanSat	3 ECTS	x	x			Würzburg Compulsory
R7004R	Spacecraft Environment Interaction	7.5 ECTS			x		Kiruna Compulsory
E7003R	Electronics in Space	7.5 ECTS			x		Kiruna Compulsory
R7002R	Image Processing and Remote Sensing	7.5 ECTS				x	Kiruna Compulsory
F7003R	Optics- and Radar-based Observations	7.5 ECTS				x	Kiruna Compulsory

2009-03-19

Läsordning för de obligatoriska kurserna							
Åk/Termin nr	Profil eller Inriktning	Antagna			Ges läsår		
2 nd year students	Engineering Track 1, Dynamics and Control of Systems and Structures, 15 ECTS (CU)	2008			2009 / 2010		
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
	Space Propulsion	5 ECTS	x	x			Compulsory
	Design and Analysis of Composite Structures	5 ECTS	x	x			Optional
	Classical Control Engineering	5 ECTS	x	x			Optional
	Multivariable Control for Aerospace Application	5 ECTS	x	x			Optional
	GPS and INS with Sensors and Data Fusion	5 ECTS	x	x			Optional
	Finite Element Method	5 ECTS	x	x			Optional

2009-03-19

Läsordning för de obligatoriska kurserna							
Åk/Termin nr	Profil eller Inriktning	Antagna			Ges läsår		
2 nd year students	Engineering Track 2, Autoation and Space Robotics, 30 ECTS (TKK)	2008			2009 / 2010		
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
	Machine Perception	3 ECTS		x			Compulsor y
	Introduction to Robot Kinematics	4 ECTS	x	x			Compulsor y
	Seminar in Automation Technology	3 ECTS			x	x	Compulsor y
	Estimation and Sensor Fusion Methods	3 ECTS	x				Compulsor y
	Field and Service Robotics	4 ECTS	x	x			Compulsor y
	Behavior-Based Robotics	3 ECTS	x				Compulsor y
	Computer Services at TKK	2 ECTS	x	x			Compulsor y; Optional for whose with TKK BSc
	Embedded Systems in Space Technology	4 ECTS	x	x			Compulsor y
	Finnish 1A	2 ECTS	x				Compulsor y; Optional for whose with TKK BSc
	Finnish 1B	2 ECTS		x			Compulsor y; Optional for whose with TKK BSc
Finnish students with TKK BSc instead of Finnish 1A, 1B, IT Services might have 3 ECTS of Master level language and 3 ECTS of any Master course.							

2009-03-19

Läsordning för de obligatoriska kurserna							
Åk/Termin nr	Profil eller Inriktning	Antagna	Ges läsår				
2 nd year students [redacted]	Engineering Track 3, Automation, Control and Communication of Space Robotics, 30 ECTS (JMUW)	2008	2009 / 2010				
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
[redacted]	Robotics	8 ECTS	x	x	[redacted]	[redacted]	Compulsory
[redacted]	Advanced Automation and Control	8 ECTS	x	x	[redacted]	[redacted]	Compulsory
[redacted]	Astronautic seminar	5 ECTS	x	x	[redacted]	[redacted]	Compulsory
[redacted]	Team Design Project	9 ECTS	x	x	[redacted]	[redacted]	Compulsory

2009-03-19

Läsordning för de obligatoriska kurserna							
Åk/Termin nr	Profil eller Inriktning		Antagna		Ges läsår		
2 nd year students	Engineering Track 4, Space Technology and Instrumentation, 30 ECTS (LTU)		2008		2009 / 2010		
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
R7008R	Space Vehicle Systems	7.5 ECTS	x				Compulsory
new	Space Instruments	7.5 ECTS		x			Compulsory
P7001R	Space Project II	15 ECTS	x	x	x	x	Compulsory
new	Remote Sensing	7.5 ECTS		x			Optional
F7008R	Solar System Physics	7.5 ECTS	x				Optional
F7006R	Solar Physics	7.5 ECTS		x			Optional
F7004R	Atmospheric Physics	7.5 ECTS	x				Optional
F7002R	Numerical Methods	7.5 ECTS	x				Optional

2009-03-19

Läsordning för de obligatoriska kurserna							
Åk/Termin nr	Profil eller Inriktning	Antagna	Ges läsår				
2 nd year students	Engineering Track 5, Space Automation and Control, 30 ECTS (CTU)	2008	2009 / 2010				
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
	Space Systems, Modeling and Identification	7 ECTS	x	x			
	Optimal and Robust Control Design	7 ECTS	x	x			
	Estimation, Filtering and Fault Detection	7 ECTS	x	x			
	Distributed Real time Systems for Space Applications	7 ECTS	x	x			
	Hardware Support in Space Engineering	7 ECTS	x	x			

2009-03-19

Läsordning för de obligatoriska kurserna							
Åk/Termin nr	Profil eller Inriktning		Antagna		Ges läsår		
2 nd year students █	Science Track 1, Astrophysics, Space Science, Planetology, research oriented, 30 ECTS (UPS)		2008		2009 / 2010		
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
█	Radiation and gravitation	6 ECTS	x	x	█	█	Compulsor y
█	Fluids and Plasmas	6 ECTS	x	x	█	█	Compulsor y
█	Space and numerical techniques	9 ECTS	x	x	█	█	Compulsor y
█	Specialization in Astrophysics, space science and planetology (3 modules out of 8 to be chosen)	9 ECTS	x	x	█	█	Compulsor y

2009-03-19

Läsordning för de obligatoriska kurserna							
Åk/Termin nr	Profil eller Inriktning		Antagna		Ges läsår		
2 nd year students	Science Track 2, Space Technique and Instrumentation, professional oriented, 30 ECTS (UPS)		2008		2009 / 2010		
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
	Techniques and Systems	6 ECTS	x	x			Compulsor y
	Technology for Missions	6 ECTS	x	x			Compulsor y
	Practical lectures	6 ECTS	x	x			Compulsor y
	Spatial Data Analysis	6 ECTS	x	x			Compulsor y
	Languages	3 ECST	x	x			Compulsor y
	World Industry	3 ECTS	x	x			Compulsor y

2009-03-19

Läsordning för de obligatoriska kurserna

Åk/Termin nr	Profil eller Inriktning	Antagna	Ges läsår				
2 nd year students	Science Track 3, Atmospheric and Space Science, 30 ECTS (LTU)	2008	2009/ 2010				
Kurskod	Benämning alt. Valfria kurser	Poäng	Lp 1	Lp 2	Lp 3	Lp 4	Kommentar
F7004R	Atmospheric Physics	7.5 ECTS	x				Compulsor y
F7001R	Space Plasma Physics	7.5 ECTS		x			Optional
F7006R	Solar Physics	7.5 ECTS	x				Optional
F7002R	Numerical Methods	7.5 ECTS	x				Optional
F7008R	Solar System Physics	7.5 ECTS	x				Optional
new	Remote Sensing	7.5 ECTS		x			Optional
new	Space Instruments	7.5 ECTS		x			Compulsor y