University of Oulu

Computer Science and Engineering, Master's Degree Programme (2 years)

Specialization: Artificial Intelligence

Master of Science (Technology), 120 ECTS Credits

Course Structur Diagram 2021-2022

Code	Course name and ECST Credits		Preferred timing								Toteally carried out as network studies (is possible to study totally in network) (x)	Carried out with English language
			1. academic year				2. academic year					
			autumn		spring		autumn		spring			
			1P	2P	3P	4P	1P	2P	3P	4P		
Specialization Options, Artificial Intelligence, Compulsory Courses 57 ECTS cr												
900017Y	Survival Finnish Course	2,0	2				0.0					
521158S	Natural Language Processing and Text Mining	5,0	5									x
521156S	Towards Data Mining	5,0	5								(x)	x
031025A	Introduction to Optimization	5,0		5								x
521273S	Biosignal Processing I	5,0		5							(x)	x
521466S	Machine Vision	5,0			5							x
521289S	Machine Learning	5,0			5							x
521283S	Big Data Processing and Applications	5,0				5						x
521140S	Computer Graphics	5,0				5						x
521285S	Affective Computing	5,0					5					x
521161S	Multi-modal Data Fusion	5,0						5			(x)	x
521153S	Deep Learning	5,0						5				x
Advanced Modules: Artificial Intelligence, Recommended Optional Studies, miminum 28 ECTS cr												
	Choose f.g. from the following courses total 28 ECTS cr.	30,0	3	5	5	5	5	0	2,5	2,5		
521155S	Computer Security	5,0	0.0				0.0				x	x
031051S	Numerical Matrix Analysis	5,0	0.0				0.0					x
521489S	Research Work on Information Processing	8,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		x
521348S	Statistical Signal Processing I	5,0	0.0				0.0					x
900013Y	Beginners' Finnish Course 1	3,0		0.0				0.0				
521291S	VR Systems and Humans	5,0		0.0				0.0				x
521145A	Human-Computer Interaction	5,0		0.0				0.0				x
521290S	Distributed Systems	5,0			0.0				0.0			x
521337A	Digital Filters	5,0	-		0.0		-		0.0			(x)
521293A	Introduction to XR Systems	5,0			0.0				0.0			x
521046A	Mobile Computing	5,0			0.0				0.0		x	x

813621S	Research Methods	5,0			0.0	0.0						x
521260S	Programmable Web Project	5,0			0.0	0.0			0.0	0.0	x	x
521292S	Fundamentals of Sensing, Tracking and Autonomy	5,0			0.0	0.0			0.0	0.0		x
521467A	Digital Image Processing	5,0				0.0				0.0		(x)
521282S	Biosignal Processing II	5,0				0.0				0.0		x
521157A	Introduction to Social Network Analysis	5,0				0.0				0.0		x
521251S - 521258S	Special Course in Information Technology 3.-10.	5,0-8,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		x
Supplementary Module												
Supplementary module can include for example courses from the basic module of another orientation.												
Common Obligatory Courses, 35 ECTS cr												
521027S	Advanced Practical Training	5,0					5				x	x
521993S	Master's Thesis in Computer Engineering	30,0						5	12,5	12,5		x
521009S	Computer Science and Engineering, The Maturity Test for Master`s Degree	0,0								0		x
	ECTS Credits / Period (15 credits)		**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**		
	ECTS Credits / Semester (30 credits)		**30**		**30**		**30**		**30**			
	ECTS Credits / Academic year (60 credits)		**60**				**60**					
	Degree (180 credits)		**120**									

University of Oulu

Computer Science and Engineering, Master's Degree Programme (2 years)

Specialization: Applied Computing

Master of Science (Technology), 120 ECTS Credits

Course Structur Diagram 2021-2022

Code	Course name and ECST Credits		Preferred timing								Toteally carried out as network studies (is possible to study totally in network) (x)	Carried out with English language
			1. academic year				2. academic year					
			autumn		spring		autumn		spring			
			1P	2P	3P	4P	1P	2P	3P	4P		
Specialization Options, Applied Computing, Compulsory Courses 52 ECTS cr												
900017Y	Survival Finnish Course	2,0	2				0.0					
521044A	Social Computing	5,0	5								(x)	x
521156S	Towards Data Mining	5,0	5								(x)	x
521042S	Creative Design	5,0	5									x
521043S	Internet of Things	5,0		5								x

521291S	VR Systems and Humans	5,0		5								x
521290S	Distributed Systems	5,0			5							x
521260S	Programmable Web Project	5,0			2,5	2,5					x	x
521292S	Fundamentals of Sensing, Tracking and Autonomy	5,0			2,5	2,5						x
521283S	Big Data Processing and Applications	5,0				5						x
521158S	Natural Language Processing and Text Mining	5,0		-			5					x
Advanced Modules: Applied Computing, Recommended Optional Studies, miminum 33 ECTS cr												
	Choose f.g. from the following courses total 33 ECTS cr.	33,0		3,0	5,0	5,0	5,0	5,0	5,0	5,0		
811372A	Software Development, Maintenance and Operations	5,0	0.0				0.0					x
521155S	Computer Security	5,0	0.0				0.0				x	x
521286A	Computer Systems	8,0	0.0	0.0			0.0	0.0				(x)
521479S	Software Project	7,0	0.0	0.0			0.0	0.0				x
900013Y	Beginners' Finnish Course 1	3,0		0.0								
521495A	Artificial Intelligence	5,0			0.0				0.0			x
811607S	Persuasive Systems Design	5,0			0.0				0.0			x
812650S	Advanced Topics in Digital Cultures and Design	5,0			0.0				0.0			x
521046A	Mobile Computing	5,0			0.0				0.0		x	x
521423S	Embedded System Project	5,0			0.0	0.0			0.0	0.0		(x)
812671S	User Experience (UX) and Usability Evaluation (or 812650S)	5,0			0.0	0.0			0.0	0.0		x
521275A	Embedded Software Project	8,0			0.0	0.0			0.0	0.0		(x)
813621S	Research Methods	5,0			0.0	0.0						x
521140S	Computer Graphics	5,0				0.0				0.0		x
812651S	ICT and Behaviour Change	5,0				0.0				0.0		x
521157A	Introduction to Social Network Analysis	5,0				0.0				0.0		x
521489S	Research Work on Information Processing	8,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	x	x
521152S	Applied Computing Project II	10,0					0.0	0.0	0.0	0.0		x
521154S	UBISS - International UBI Summer School	5,0										x
521251S - 521258S	Special Course in Information Technology 3.-10.	5,0-8,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		x
Supplementary Module												
Supplementary module can include for example courses from the basic module of another orientation.												
Common Obligatory Courses, 35 ECTS cr												
521027S	Advanced Practical Training	5,0					5					
521993S	Master's Thesis in Computer Engineering	30,0						10	10	10		
521009S	Computer Science and Engineering, The Maturity Test for Master`s Degree	0,0								0		
	ECTS Credits / Period (15 credits)		**17**	**13**	**15**	**15**	**15**	**15**	**15**	**15**		
	ECTS Credits / Semester (30 credits)		**30**		**30**		**30**		**30**			
	ECTS Credits / Academic year (60 credits)		**60**				**60**					
	Degree (180 credits)		**120**									

Computer Science and Engineering, Master's Degree Programme (2 years)
Specialization: Computer Engineering, Software
Master of Science (Technology), 120 ECTS Credits
Course Structur Diagram 2021-2022

Code	Course name and ECST Credits		Preferred timing								Totally carried out as network studies (is possible to study totally in network)	Carried out with English language
			1. academic year				2. academic year					
			autumn		spring		autumn		spring			
			1P	2P	3P	4P	1P	2P	3P	4P		
Specialization Options, Computer Engineering, Compulsory Courses 39 ECTS cr												
900017Y	Survival Finnish Course	2,0	2				0.0					
521155S	Computer Security	5,0	5								x	x
521479S	Software Project	7,0	3,5	3,5								x
521279S	Signal Processing Systems	5,0		5								x
521288S	Multiprocessor Programming	5,0			2,5	2,5						x
521423S	Embedded System Project	5,0			2,5	2,5						x
521281S	Application Specific Signal Processors	5,0					5					x
521043S	Internet of Things	5,0						5				x
Advanced Modules: 2. Software / Compulsory Courses, 20 ECTS cr												
521348S	Statistical Signal Processing I	5,0	5									x
521340S	Communication Networks I	5,0		5								x
521290S	Distributed Systems	5,0			5							x
521395S	Wireless Communications I	5,0					5					x
Advanced Modules: 1. Software / Optional Courses, 26 ECTS cr												
	Choose f.g. from the following courses total 26 ECTS cr.	26,0		1	5	10		5	5			
521156S	Towards Data Mining	5,0	0.0				0.0				(x)	x
521307A	Laboratory Exercises on Analogue Electronics	5,0	0.0	0.0			0.0	0.0				
521489S	Research Work on Information Processing	8,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	x	x
900013Y	Beginners' Finnish Course 1	3,0		0.0								
031025A	Introduction to Optimization	5,0		0.0				0.0				x
521145A	Human-Computer Interaction	5,0		0.0				0.0				x
521273S	Biosignal Processing I	5,0		0.0				0.0			(x)	x
521070A	Introduction to Microfabrication Techniques	5,0		0.0				0.0				
521495A	Artificial Intelligence	5,0			0.0				0.0			x
521337A	Digital Filters	5,0			0.0				0.0			(x)

521466S	Machine Vision	5,0			0.0				0.0			x
521289S	Machine Learning	5,0			0.0				0.0			x
813621S	Research Methods	5,0			0.0	0.0			0.0	0.0		x
521260S	Programmable Web Project	5,0			0.0	0.0			0.0	0.0	x	x
521467A	Digital Image Processing	5,0				0.0				0.0		(x)
521283S	Big Data Processing and Applications	5,0				0.0				0.0		x
521140S	Computer Graphics	5,0				0.0				0.0		x
521251S - 521258S	Special Course in Information Technology 3.-10.	5,0-8,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		x
Supplementary Module												
Supplementary module can include for example courses from the basic module of another orientation.												
Common Obligatory Courses, 35 ECTS cr												
521027S	Advanced Practical Training	5,0					5					
521993S	Master's Thesis in Computer Engineering	30,0						5	10	15		
521009S	Computer Science and Engineering, The Maturity Test for Master`s Degree	0,0								0		
	ECTS Credits / Period (15 credits)		**16**	**15**	**15**	**15**	**15**	**15**	**15**	**15**		
	ECTS Credits / Semester (30 credits)		**30**		**30**		**30**		**30**			
	ECTS Credits / Academic year (60 credits)		**60**				**60**					
	Degree (180 credits)		**120**									