

University of Oulu

Computer Science and Engineering, Master's Degree

Programme (2 years) 2019-2020

Specialization: Artificial Intelligence

Master of Science (Technology), 120 ECTS Credits

Course Structur Diagram 2019-2020

Code and link to the course description in Oodi	Course name and ECST Credits		Preferred timing								Carried out as network studies (x)
			1. academic year				2. academic year				
			autumn		spring		autumn		spring		
1P	2P	3P	4P	1P	2P	3P	4P				
	Specialization Options, Artificial Intelligence , Compulsory Courses 60 ECTS cr										
031025A	Introduction to Optimization	5,0		5							
521156S	Towards Data Mining	5,0		5							x
521273S	Biosignal Processing I	5,0		5							x
521158S	Natural Language Processing and Text Mining	5,0		5							
813621S	Research Methods	5,0			2,5	2,5					
521466S	Machine Vision	5,0			5						
521289S	Machine Learning	5,0			5						
521283S	Big Data Processing and Applications	5,0				5					
521140S	Computer Graphics	5,0				5					
521285S	Affective Computing	5,0					5				
521161S	Multi-modal Data Fusion	5,0						5			
521153S	Deep Learning	5,0						5			
	Specialization Options, Artificial Intelligence, Recommended Optional Studies, minimum 25 ECTS cr										
	Choose f.g. from the following courses total 25 ECTS cr.	25,0	10	0	2,5	2,5	5		5		
521155S	Computer Security	5,0	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	
521157A	Introduction to Social Network Analysis	5,0				0.0				0.0	
521145A	Human-Computer Interaction	5,0		0.0				0.0			
521495A	Artificial Intelligence	5,0			0.0				0.0		
521045S	Mobile Computing	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
521290S	Distributed Systems	5,0			0.0				0.0		
521348S	Statistical Signal Processing I	5,0				0.0				0.0	
521467A	Digital Image Processing	5,0				0.0				0.0	
521282S	Biosignal Processing II	5,0				0.0				0.0	
Optional Studies for Foreign Language Students Only:											
900017Y	Survival Finnish Course	2,0	0.0								
900013Y	Beginners' Finnish Course 1	3,0		0.0							

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)			15	15	15	15	15	15	15	15	4	
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) 2019-2020

Specialization: Applied Computing

Master of Science (Technology), 120 ECTS Credits

Course Structur Diagram 2019-2020

Code and link to the course description in Oodi	Course name and ECST Credits		Preferred timing								Carried out as network studies (x)		
			1. academic year				2. academic year						
			autumn		spring		autumn		spring				
				1P	2P	3P	4P	1P	2P	3P	4P		
	Specialization Options, Applied Computing, Compulsory Courses 57 ECTS cr												
521479S	Software Project	7,0	3,5	3,5									
521042S	Creative Design	5,0	5										
521158S	Natural Language Processing and Text Mining	5,0		5									
521290S	Distributed Systems	5,0			5								
813621S	Research Methods	5,0			2,5	2,5							
521260S	Programmable Web Project	5,0			2,5	2,5							x
521045S	Mobile Computing	5,0			2,5	2,5							x
521043S	Internet of Things	5,0				5							
521283S	Big Data Processing and Applicationsm	5,0				5							
521152S	Applied Computing Project II	10,0						2,5	2,5	2,5	2,5		
	Specialization Options, Applied Computing, Recommended Optional Studies, minimum 28 ECTS cr												
	Choose f.g. from the following courses total 28 ECTS cr.	23,0	6,5	6,5				7,5	2,5	2,5	2,5		
817603S	System Design Methods for Information Systems	5,0	0.0					0.0					

812331A	Interaction Design	5,0	0.0				0.0						
815657S	Open Source Software Development	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	0.0		
521041A	Applied Computing Project I	8,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
521149S	Special Course in Information Technology	5 - 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
813625S	Information Systems Theory	5,0	0.0	0.0			0.0	0.0					
521286A	Computer Systems	8,0	0.0	0.0			0.0	0.0					
812650S	Advanced Topics in Human-Centred Design	5,0			0.0					0.0			
521423S	Embedded System Project	5,0			0.0	0.0				0.0	0.0		
521275A	Embedded Software Project	8,0			0.0	0.0				0.0	0.0		
812671S	Usability Testing (or 812650S)	5,0			0.0	0.0				0.0	0.0		
521154S	UBISS - International UBI Summer School	5,0											
Optional Studies for Foreign Language Students Only:													
900017Y	Survival Finnish Course	2,0	0.0										
900013Y	Beginners' Finnish Course 1	3,0		0.0									
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)			15	15	12,5	17,5	15	15	15	15		2	
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) 2019-2020

Specialization: Computer Engineering, Hardware

Master of Science (Technology), 120 ECTS Credits

Course Structur Diagram 2019-2020

Code and link to the course description in Oodi	Course name and ECST Credits	Preferred timing								Carried out as network studies (x)	
		1. academic year				2. academic year					
		autumn		spring		autumn		spring			
		1P	2P	3P	4P	1P	2P	3P	4P		
	Specialization Options, Computer Engineering, Compulsory Courses 37 ECTS cr										
521479S	Software Project	7,0	3,5	3,5							

521155S	Computer Security	5,0	5									
521279S	Signal Processing Systems	5,0		5								
521288S	Multiprocessor Programming	5,0			2,5	2,5						
521423S	Embedded System Project	5,0			2,5	2,5						
521043S	Internet of Things	5,0				5						
521281S	Application Specific Signal Processors	5,0					5					x
	Advanced Modules: 1. Hardware / Compulsory Courses, 22 op											
521404A	Digital Techniques 2	5,0		5								
521303A	Circuit Theory 2	5,0		5								
521406S	Digital Techniques 3	7,0			3,5	3,5						
521340S	Communication Networks I	5,0						5				
	Advanced Modules: 1. Hardware / Optional Courses, 26op											
	Choose f.g. from the following courses total 26 ECTS cr.	26,0	3		6,5	1,5	5	5	5			
521307A	Laboratory Exercises on Analogue Electronics	5,0	0.0	0.0			0.0	0.0				
521405A	Electronic System Design	5,0	0.0				0.0					
521401S	Electronics Design II	6,0	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		
521070A	Introduction to Microfabrication Techniques	5,0		0.0				0.0				
521395S	Wireless Communications I	5,0		0.0				0.0				
521385S	Mobile Telecommunication Systems	5,0			0.0					0.0		
521328A	Simulations and Tools for Telecommunications	5,0		0.0				0.0				
521088S	Optoelectronics	5,0			0.0					0.0		
813621S	Research Methods	5,0			0.0	0.0				0.0	0.0	
521304A	Filters	5,0			0.0					0.0		
521348S	Statistical Signal Processing I	5,0				0.0						
Optional Studies for Foreign Language Students Only:												
900017Y	Survival Finnish Course	2,0	0.0									
900013Y	Beginners' Finnish Course 1	3,0		0.0								
	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)		11,5	18,5	15	15	15	15	15	15	15	1
	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) 2019-2020

Specialization: Computer Engineering,
Software

Master of Science (Technology), 120 ECTS Credits

Course Structur Diagram 2019-2020

Code and link to the course description in Oodi	Course name and ECST Credits		Preferred timing								Carried out as network studies (x)
			1. academic year				2. academic year				
			autumn		spring		autumn		spring		
		1P	2P	3P	4P	1P	2P	3P	4P		
	Specialization Options, Computer Engineering, Compulsory Courses 37 ECTS cr										
521479S	Software Project	7,0	3,5	3,5							
521155S	Computer Security	5,0	5								
521279S	Signal Processing Systems	5,0		5							
521288S	Multiprocessor Programming	5,0			2,5	2,5					
521423S	Embedded System Project	5,0			2,5	2,5					
521043S	Internet of Things	5,0				5					
521281S	Application Specific Signal Processors	5,0					5				x
	Advanced Modules: 2. Software / Compulsory Courses, 20 op										
521348S	Statistical Signal Processing	5,0	5								
521340S	Communication Networks I	5,0		5							
521395S	Wireless Communications I	5,0		5							
521290S	Distributed Systems	5,0			5						
	Advanced Modules: 1. Software / Optional Courses, 28op										
	Choose f.g. from the following courses total 28 ECTS cr.	28,0			3	5	5	10	5		
031025A	Introduction to Optimization	5,0		0.0				0.0			
521156S	Towards Data Mining	5,0	0.0				0.0				
521145A	Human-Computer Interaction	5,0									
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	
521273S	Biosignal Processing I	5,0		0.0				0.0			x
521070A	Introduction to Microfabrication Techniques	5,0		0.0				0.0			
521337A	Digital Filters	5,0			0.0				0.0		
813621S	Research Methods	5,0			0.0	0.0			0.0	0.0	
521260S	Programmable Web Project	5,0			0.0	0.0			0.0	0.0	x
521466S	Machine Vision	5,0			0.0				0.0		
521289S	Machine Learning	5,0			0.0				0.0		
521467A	Digital Image Processing	5,0	0.0				0.0				

521283S	Big Data Processing and Applications	5,0											
521140S	Computer Graphics	5,0				0.0						0.0	
Optional Studies for Foreign Language Students Only:													
900017Y	Survival Finnish Course	2,0	0.0										
900013Y	Beginners' Finnish Course 1	3,0		0.0									
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)			13,5	18,5	13	15	15	15	15	15	15	15	3
ECTS Credits / Semester (30 credits)			32		28		30		30				
ECTS Credits / Academic year (60 credits)			60				60						
Degree (180 credits)			120										