

Course Structure Diagram 2015-2016

Electrical Engineering

Master of Science (Technology), 120 ECTS credits

Course code	Course name	Credits + recommended timing			
		1. year		2. year	
		1. aut	1.spr	2. aut	2. spr

<i>The Electronics Design option</i>					
Basic module 30 cr					
521443S	Electronics Design II	5			
521405A	Electronic System Design	5			
521326S	Radio Engineering I	5			
521423S	Embedded System Project	5			
521088S	Optoelectronics		5		
521305S	Computer Aided Circuit Design		5		
Advanced modules 57 cr					
	Electronics design				
	Obligatory 18 cr				
521435S	Electronics Design III	6			
521445S	Digital Techniques III		6		
521300S	Electronics Design and Construction Exercise		6		
	Optional 39 cr	4	5	30	
	Digital systems design				
	Obligatory 16 cr				
521445S	Digital Techniques III		6		
521453A	Operating systems		5		
521457A	software Engineering		5		
	Optional 41 cr	6	5	30	
521016A	Advanced practical training		3		
	MSc Thesis (+ seminar)				30

<i>The Electronics Materials and Components option</i>					
Basic module 35 cr					
521073S	Electroceraamics and Intelligent Materials	5 ⁽⁴⁾		5 ⁽⁴⁾	
521223S	Electronic and Optoelectronic Materials	5			
521326S	Radio Engineering I	5			
521443S	Electronics Design II	5			
521075S	Microelectronics Packaging Technologies		5		
521225S	RF Components and Measurements		5		
521074S	Microelectronics and Mechanics		5		

Advanced module 52 cr					
	Electronics Materials and Components				
	Obligatory (min 2 courses) 10 - 15 cr				
521072S	Microsensors	5 ⁽⁵⁾		5 ⁽⁵⁾	
521080S	X-ray diffraction	5 ⁽⁶⁾		5 ⁽⁶⁾	
521076S	Microelectronics Characterization Methods		5 ⁽⁶⁾		5 ⁽⁶⁾
	Optional 37 - 42 cr				
521016A	Advanced practical training		3		
	MSc Thesis (+ seminar)				30

<i>The Telecommunications option</i>					
Basic module 40 cr					
031025A	Introduction to Optimization	5			
521321S	Elements of Information Theory and Coding	5			
521316S	Broadband Communication systems	5			
521323S	Wireless Communications I	5			
521340S	Communication Networks I	5			
521326S	Radio Engineering I	5			
521324S	Communication Signal Processing I		5		
521385S	Mobile Telecommunication Systems			5	
Advanced module 47 cr					
	Obligatory (min. 2 courses) 16 - 31 cr				
521377S	Communication Networks II		7		
521317S	Wireless Communications II		8		
521375S	Radio Engineering II		6		
521386S	Antennas (even years)		5		
521386S	Radio Channels (odd years)		5		
521325S	Communication Signal Processing II			5	
	Optional 16 - 31 cr		0 - 17	20 - 25	
521016A	Advanced practical training		3		
	MSc Thesis (+ seminar)				30

<i>The Photonics and Measurement Techniques option</i>					
Basic module 30 cr					
521091S	Technical Optics	5			
521096S	Measuring Systems	5			
521124S	Sensors and Measuring Techniques	5			
521443S	Electronics Design II	5			
521326S	Radio Engineering I	5			
521088S	Optoelectronics		5		
Advanced module 57 cr					

	Optiset ja sähköiset mittaustekniikat				
	Obligatory 15 cr				
521240S	Biophotonics and Biomedical Optics	5			
521093S	Biomedical Instrumentation		5		
521094S	Optoelectronic Measurements		5		
	Optional 42 cr		12	30	
	Testing techniques and printed electronics				
	Obligatory 10 cr				
521089S	Printed electronics	5			
521098S	Testing techniques of electronics		5		
	Optional 47 cr		12	30	
521016A	Advanced practical training		3		
	MSc Thesis (+ seminar)				30
	Semester total	30	30	30	30
	Academic year total		60	60	

- (3) choose one advanced module; (4) 1st or 2nd year, alternates with 521228S Microsensors;
(5) alternates with 521103S electroceramics and intelligent materials; (6) alternate years;
(7) minimum of two chosen, the module can be completed with optionals