

M.Sc. in Robotic Systems Engineering

	Module	CP	WS - 1. Sem.			SS - 2. Sem.			WS - 3. Sem.			SS - 4. Sem.		
			L	E	P	L	E	P	L	E	P	L	E	P
RWTH Aachen	Compulsory Courses	26	SWS			SWS			SWS			SWS		
	Robotic Systems	5	2	2										
	Advanced Robotic Kinematics and Dynamics	5	2	2										
	Control Engineering	3	2	2										
	Machine Learning	6	3	1										
	Computer Science in Mechanical Engineering II	5	2	2										
	German Language Course	2	1	1										
	Compulsory Courses	16												
	Multibody Dynamics	5				2	2							
	Computer Vision I	6				3	1							
	Robotic Sensor Systems	5							2	2				
	Compulsory Course	5												
	Simulation of Robotic Systems, Sensors and Environment	5							2	1				
	Elective Courses	43	4-6			17-19			20					
	Internship (Industrial Track) or Research Project (Academic Track)	10										10		
	Master Thesis	20										20		
Master Defense Colloquium														
Total	120	30-32			28-30			30			30			

Elective Courses	CP	L	E	P	Term
Production Metrology	5	2	2		SS
Machine Dynamics of Rigid Systems	6	2	2		SS
Industrial Logistics	5	2	1		SS
Artificial Intelligence and Data Analytics for Engineers	5	2	2		SS
Factory Planning	6	2	2		SS
Advanced Electrical Drives	4	2	1		SS
Summer School** - Advanced Topics in Robotic Systems Engineering	3	2	2		SS
Advanced Machine Learning	6	3	1		SS
Computer Vision II	6	3	1		WS
Introduction to Artificial Intelligence	6	2	2		WS
Power Electronics	5	3	1		WS
Processes and Principles for Lightweight Design	6	2	2		WS
Applied Numerical Optimization Engineering	4	2	2		WS
Numerical Methods in Mechanical Engineering	7	3	2		WS
Strategic Technology Management	5	2	2		WS
Advanced Finite Element Methods for Engineers	5	2	2		WS
Mechatronics and Control Techniques for Production Plants	6	2	2		WS
Advanced Control Systems	4	2	1		WS

Module
Compulsories
Electives
Internship Industry / Research Project
Master Thesis
Total

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- Robot Motion Planning (Prof. Ferrein, cooperation with FH)
 - Robotics for Future Industrial Applications Prof. Meisen, RWTH IntAc)
 - Digital Work: Challenges and Solutions (Prof. Lang, Dr. Mertens)