

Course of Study Theoretical Mechanical Engineering (Study Cohort w17)

Sample course plan A Master Theoretical Mechanical Engineering (TMBMS)
Specialisation Materials Science

Legend:

Core qualification Compulsory	Specialisation Compulsory	Focus Compulsory	Thesis Compulsory
Core qualification Elective Compulsory	Specialisation Elective Compulsory	Focus Elective Compulsory	Interdisciplinary complement

LP	Semester 1	Form	Hrs/wk	Semester 2	Form	Hrs/wk	Semester 3	Form	Hrs/wk	Semester 4	Form	Hrs/wk
1	Finite Elements Methods			Numerical Treatment of Ordinary Differential Equations			Research Project Theoretical Mechanical Engineering			Master Thesis		
2	Finite Element Methods	VL	2									
3	Finite Element Methods	HÜ	2	Numerical Treatment of Ordinary Differential Equations	VL	2						
4				Numerical Treatment of Ordinary Differential Equations	UE	2						
5												
6												
7	Control Systems Theory and Design			Applied Dynamics: Numerical and experimental methods								
8	Control Systems Theory and Design	VL	2									
9	Control Systems Theory and Design	UE	2	Applied Dynamics	VL	2						
10				Lab Applied Dynamics	FL	3						
11												
12												
13	Modelling and Optimization in Dynamics			High-Order FEM			Materials Physics and Atomistic Materials Modeling					
14	Flexible Multibody Systems	VL	2	High-Order FEM	VL	3	Materials Physics	VL	2			
15	Optimization of dynamical systems	VL	2	High-Order FEM	HÜ	1	Atomistic Materials Modeling	VL	2			
16							Exercises in Materials Physics and Modeling	UE	2			
17												
18												
19	Control Lab C			Computational Fluid Dynamics II			Advanced Functional Materials					
20	Control Lab VII	PR	1	Computational Fluid Dynamics II	VL	2	Advanced Functional Materials	VL	2			
21	Control Lab VIII	PR	1	Computational Fluid Dynamics II	HÜ	2						
22	Control Lab IX	PR	1									
23												
24												
25				Linear and Nonlinear System Identification								
26				Linear and Nonlinear System Identification	VL	2						
27												
28				Modeling Across The Scales								
29				Modeling Across The Scales	VL	2						
30				Modeling Across The Scales - Exercise	UE	2						
31												
32												
33												
Business & Management (from catalogue) - 6LP												
Nontechnical Elective Complementary Courses for Master (from catalogue) - 6LP												

The choice of courses from the catalogue is flexible (depends on the semestral work load), provided the necessary number of required credits is reached.