Course of Study Theoretical Mechanical Engineering (Study Cohort w15)

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	Numerical Treatment of Ordinary Partial Differential Equations	VL	2						
3	Finite Element Methods	HÜ	2	Numerical Treatment of Ordinary Partial Differential Equations	UE	2						
4												
5												
6												
7	**Control Systems Theory and Design**			**Applied Dynamics: Numerical and experimental methods**								
8	Control Systems Theory and Design	VL	2	Applied Dynamics	VL	2						
9	Control Systems Theory and Design	UE	2	Lab Applied Dynamics	FL	2						
10												
11												
12												
13	**Continuum Mechanics**			**Nonlinear Dynamics**			**Polymers and Composites**					
14	Continuum Mechanics	VL	2	Nonlinear Dynamics	VL	3	Structure and Properties of Polymers	VL	2			
15	Continuum Mechanics Exercise	UE	2				Structure and Properties of Composites	VL	2			
16												
17												
18												
19	**Modelling and Optimization in Dynamics**			**Optimal and Robust Control**								
20	Flexible Multibody Systems	VL	2	Optimal and Robust Control	VL	2						
21	Optimization of dynamical systems	VL	2	Optimal and Robust Control	UE	1						
22												
23				**Control Lab B**								
24				Control Lab V	PR	1						
				Control Lab VI	PR	1						
25	**Material Modeling**			**Modeling Across The Scales**								
26	Material Modeling	VL	2	Modeling Across The Scales	VL	2						
27	Material Modeling	UE	2	Modeling Across The Scales - Excercise	UE	2						
28												
29												
30												
	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.