



Master's Degree Programme Computational Methods in Engineering

(PO'19)

Name: _____ Matr.-No.: _____ Date: _____

Sem.	Master Computational Methods in Engineering Programme – Pathway (Start in winter semester) PO'19		CP
1.	Compulsory Modules KS 22 CP	Elective Modules KS 8 CP	30
2.	Compulsory Modules KS 12 CP	Elective Modules KS or SG / Integration Modules 18 CP	30
3.	Mobility Window: Required elective (Interdisciplinary) Project (12 CP) and Elective Modules KS (18 CP) or Required elective Practical Project (30 CP)		30
4.	Elective Module 6 CP	Master's Thesis 24 CP	30

 Compulsory Modules Core Studies	 Academic Paper
 Elective Modules Core Studies	 Elective Modules General Studies

Legend

KB	Area of Expertise	WSF	E-Learning module in WiSe
KS	Core Studies	WSP/SSF	In-class module in WiSe/E-Learning module in SoSe
SG	Studium Generale	SSP+F	In-class and E-Learning module in SoSe
WA	Academic Paper	WS/SS	Module is offered in SoSe and WiSe
P	Compulsory module	(*)	Alternatively, the module can be completed in English, please refer to the module catalogue
WP	Compulsory elective module	(**)	Alternatively, the module can be completed in German, please refer to the module catalogue
W	Elective module		
D	German		
E	English		

Module	WS/SS	Language	CP	P/W KB	Self Planning					
					1	2	3	4	Σ	
34 CP	Foundations of Computational Engineering	WS/SS	E	6	P KS					
	Mechanics of Solids (**)	WS	E	6	P KS					
	Numerical Methods in Fluid Mechanics	SS	E	6	P KS					
	Numerics of Partial Differential Equations for CME	WS	E	10	P KS					
	Reliability and Risk Analysis	SS	E	6	P KS					
1. Core Studies (KS) 44 - 62 CP	Interdisciplinary Project	WS/SS	D u E	12	WP FSV					
	Practical Project	WS/SS	D u E	30	WP FSV					
	Advanced Stochastic Analysis	WSP/SSF	E	6	W KS					
	Biomechanik der Knochen	SS	D	5	W KS					
	Bodendynamik	SS	D	6	W KS					
	Engineering Dynamics and Vibration	SS	E	5	W KS					
	Fahrzeug-Fahrweg-Dynamik	SS	D	5	W KS					
	Faserverbund-Leichtbaustrukturen I	WS	D	6	W KS					
	Faserverbund-Leichtbaustrukturen II	SS	D	6	W KS					
	Finite Element Applications in Structural Analysis (**)	SS	E	6	W KS					
	Fracture of Materials and Fracture Mechanics	SS	E	4	W KS					
	Grundwassermodellierung	SS	D	6	W KS					
	Hydrosystemmodellierung	WS	D	6	W KS					
	Introduction to Mechanical Vibrations	WS	E	5	W KS					
	Kontinuumsmechanik II	SS	D	5	W KS					
	Künstliche Intelligenz I	SS	D	5	W KS					
	Machine Learning for Material and Structural Mechanics	WS/SS	E	6	W KS					
	Mehrkörpersysteme	WS	D	5	W KS					
	Modelltechnik im Küsteningenieurwesen	WS	D	6	W KS					
	Nichtlineare Optimierung I für CME (wieder im WS 26/27)	WS/SS	D	10	W KS					
	Nichtlineare Optimierung II für CME (nur im SoSe 2024)	WS/SS	D	10	W KS					
	Nichtlineare Schwingungen	SS	D	5	W KS					
	Nichtlineare Statik der Stab- und Flächentragwerke	WS	D	6	W KS					
	Numerical Modelling in Geotechnical Engineering	SS	E	6	W KS					
	Objektorientierte Modellbildung und Simulation	WS	D	6	W KS					
	Particle methods for Engineering Mechanics I	WS	E	6	W KS					
	Particle methods for Engineering Mechanics II (NEW in SoSe 2024)	SS	E	6	W KS					
	Porous Media Mechanics (former Continuum Mechanics of multiphase porous)	WS/SS	E	6	W KS					
	Reliable Simulation in the Mechanics of Materials and Structures	WS/SS	F	6	W KS					
	Robotik I	WS	D	5	W KS					
	Stochastic Finite Element Methods	SS	E	6	W KS					
Stoff- und Wärmetransport	WS	D	6	W KS						
Systems and Network Analysis	WSP/SSF	E	6	W KS						
Subtotal:										



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Module		WS/SS	Language	CP	P/W KB	1	2	3	4	Σ	
Carry over:											
2. Studium Generale (SG)	Coastal and Estuarine Management	WS	E	6	W SG						
	Computergestützte Numerik und Stochastik für Ingenieure	WS/SS	D	6	W SG						
	Field Measuring Techniques in Coastal Engineering	SS	E	6	W SG						
	Hydromechanics of Offshore Structures	WS	E	6	W SG						
	Konstruieren im Stahlbau	WS	D	6	W SG						
	Kontinuumsmechanik I	WS	D	5	W SG						
	Küsteningenieurwesen	WS	D	6	W SG						
	Marine Construction Logistics	SS	E	6	W SG						
	Maritime and Port Engineering	SS	E	6	W SG						
	Sonderthemen des Stahl-, Stahlverbund- und Leichtbaus (nicht im SoSe 2024)	SS	D	6	W SG						
	Stahl- und Verbundbrückenbau	WS	D	6	W SG						
	Tragstrukturen von Offshore-Windenergieanlagen	WS	D	6	W SG						
	Wasserbau und Verkehrswasserbau	SS	D	6	W SG						
	Studium Generale (Integration modules/useful complement of further modules from the other offer of the LUH), e.g.										
		Computational Mechanics	WSF/SSP+F	D u E	6	W SG					
	Elastomechanik	WS/SS	D	6	W SG						
	English for Civil Engineering and Architecture	WS/SS	E	2	W SG						
	Deutsch für Studierende der Ingenieurwissenschaften	WS	D	3	W SG						
3. WA	24 CP	Master's Thesis	WS/SS	D u E	24	P WA					
Total:											

Course Website: <http://www.fbg.uni-hannover.de/cmesc>