

# Master programme *Tropical Hydrogeology and Environmental Engineering (M.Sc.)*



TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

## PO 2021 Study and Examination Plan

(English translation is for information purposes only - the legally binding document is the German version)

Legend		Examinations						Courses		CP	Semester									
Grading scheme:	St = Standard (with grades); bnb = pass/no pass (no grades)	Technical examination (TP, Fachprüfung) Study examination (SL, Studienleistung)	Examination type	Duration (min)	Weighting for module grade	Weighting for total grade (GPA)	Hours per week during lecture term	Status	Course type	CP total	The assignment of exams/credits to semesters is recommendational only.									
Examination type:	B = report, H = homework, HÜ = home assignments, K = written exam, Kq = colloquium, mP = oral exam, Pt = presentation, R = paper, Th = thesis										Workload per Semester (CP)									
Status:	o = compulsory; f = optional																			
Course type:	VL = lecture; Ü = exercise; VÜ = lecture with exercise; S = seminar; EK = excursion, field trip; PR = practical training																			
CP:	Credit points																			
TUCaN nos. and assignment of CP to module components are purely informative. Credits are given only after completion of the module.											1.	2.	3.	4.						
<b>Compulsory Modules (18 CP)</b>																				
11-02-3402	Scientific Methods	St	Pt	-	1	1	2	o	<del>X</del>	6										
11-02-3402-se	Project Seminar						2	o	S			6								
11-02-3431	Semi-arid Field Hydrogeology	bnb	B	-	0	0	6	o	EK	6			6							
11-02-3272-ek	Field Trip to a Semi-arid Region						6	o	EK				6							
11-02-3400	Scientific Training	St	B	-	1	1	-	o	<del>X</del>	6										
-	Scientific training / internship						-	o	PR				6							
<b>Interdisciplinary Modules (0 - 6 CP)</b>																				
Module catalogue	Interdisciplinary Modules (type §30 para. 6 APB area with unrestricted module change, 0 - 6 CP)																			
-	Gesamtkatalog aller Module der TU										1	<del>X</del>	0-4	f	-	0-6				
<b>Specialisation in Hydrogeology (66 - 72 CP; type §30 para. 4 APB elective specialisation)</b>																				
<b>Elective Modules for Hydrogeology specialisation (type §30 para. 6 APB area with unrestricted module change, at least 66 - 72 CP, with max. 24 CP taken from C2)</b>																				
<b>C1 Specialisation-related Elective Modules</b>																				
11-02-3401	Fundamentals of Geosciences	St		K	90	1	1	4	f	<del>X</del>	6									
11-02-3404-vu	Geological Methods							2	f	VÜ		3								
11-02-3405-vu	Practical Mineralogy and Petrology							2	f	VÜ		3								
11-02-2238	Clay Mineralogy	St		K	90	1	1	4	f	<del>X</del>	6									
11-02-2044-vu	Clay Mineralogy							2	f	VL		3								
11-02-2045-vu	Applied Clay Mineralogy							2	f	VL			3							
11-02-3462	Geoinformation Systems						1	6	f	<del>X</del>	6									
11-02-1326-vu	GIS I (Techniques)	St		H	-	1		3	f	PR		3								
11-02-2243-vu	GIS II (Case studies)	St		K	90	1		3	f	VÜ			3							
11-02-3416	Remote Sensing and Statistics						1	2	f	<del>X</del>	3									
11-02-2183-vu	Statistics	St		K	60	1		2	f	VÜ		3								
11-02-2244-vu	Remote Sensing in Geology		St	H	-	1		2	f	VÜ			3							
13-L1-M007	Integrated Water Management	St		mP	15	1	1	4	f	<del>X</del>	6									
		bnb		H	-	0				<del>X</del>										
13-L1-0006-vu	Integrated Water Management							4	f	VÜ	6									
11-02-3406	Hydrogeology I						1	4	f	<del>X</del>	6									
11-02-3406-vu	Hydrogeology I	St		K	90	1		3	f	VÜ	4									
11-02-3271-ek	Hydrogeological Field Trips		bnb	B	-	0		2	f	EK	2									
11-02-3464	Soil and Groundwater Physics						1	4	f	<del>X</del>	6									
11-02-3407-vl	Physical Hydrogeology	St		K	60	1		2	f	VL	3									
11-02-3410-vu	Unsaturated Zone Processes/Groundwater Recharge	St		K/H	90/-	1		2	f	VÜ		3								
11-02-3466	Hydrochemistry I						1	5	f	<del>X</del>	6									
11-02-2031-vu	Hydrochemistry	St		K	90	1		2	f	VL	3									
11-02-3214-vu	Water Analysis		St	B	-	1		3	f	VÜ	3									
11-02-3468	Hydrogeology II						1	4	f	<del>X</del>	6									
11-02-2032-vu	Hydrogeology II	St		K	90	1		2	f	VÜ		3								
11-02-3417-pr	Hydrogeological Field Course		St	B	-	1		2	f	PR		3								
11-02-6023	Hydrochemistry II	St		K	90	1	1	4	f	<del>X</del>	6									
11-02-2111-vu	Hydrogeochemistry							4	f	VÜ		6								
11-02-2219	Groundwater Modelling						1	4	f	<del>X</del>	6									
11-02-2134-vu	Introduction to Groundwater Modelling	St		K	90	1		2	f	VÜ		3								
11-02-2133-vu	Advanced Groundwater Modelling		St	H	-	1		2	f	VÜ			3							
11-02-2229	Isotope Hydrology and Dating	St		K	60	1	1	2	f	<del>X</del>	3									
11-02-3253-vl	Isotope Hydrology and Dating							2	f	VÜ			3							
11-02-2239	Tracer Techniques		St	H	-	1	1	2	f	<del>X</del>	3									
11-02-3254-vu	Tracer Techniques							2	f	VÜ			3							
11-02-2310	Geohydraulics and Well Construction	St		K	90	1	1	4	f	<del>X</del>	6									
11-02-2163-vu	Geohydraulics and Well Construction							4		VÜ				6						

11-02-2336	Sedimentology II					1	4	f	5						
11-02-2175-vl	Basin Analysis	St	K	90	3	2	2	f	VL				3		
11-02-2176-pr	Sequence Stratigraphy Field Course (3 days)	St	B	-	2	2	2	f	PR				2		
11-02-2337	Sedimentology III	St	K	90	1	1	3	f	5						
11-02-2177-vl	Sedimentary Petrology and Provenance Analysis					1	1	f	VL				2		
11-02-2178-ue	Microscopy of Sandstones					2	2	f	Ü				3		
11-02-2338	Sedimentology IV	St	B	-	1	1	3	f	5						
11-02-2172-pr	Sedimentological Field Course					3	3	f	PR				5		
11-02-2339	Sedimentology V	St	K	90	1	1	3	f	5						
11-02-2179-vu	Erosion: Processes and methods					3	3	f	VÜ				5		
11-02-3413	Geophysical Methods					1	5	f	6						
11-02-1232-vu	Geophysical Field Methods	St	K	90	1	1	3	f	PR				3		
11-02-2253-pr	Ground Penetrating Radar (GPR)	St	K/B	90/-	1	1	2	f	PR				3		
<b>C2 Other Elective Modules (0 - 24 CP)</b>															
	Possibility to choose modules from the Environmental Engineering specialisation that are not included in C1.							f							
<b>Specialisation in Environmental Engineering (66 - 72 CP; type §30 para. 4 APB elective specialisation)</b>															
<b>Elective Modules for Environmental Engineering specialisation (type §30 para. 6 APB area with unrestricted module change, at least 66 - 72 CP, with max. 24 CP taken from C2)</b>															
<b>C1 Specialisation-related Elective Modules</b>															
13-L1-M007	Integrated Water Management	St	mP	15	1	1	4	f	6						
		bnb	H	-	0	0	4	f	VU				6		
13-L1-0006-vu	Integrated Water Management					1	4	f	6						
11-02-3406	Hydrogeology I					1	4	f	6						
11-02-3406-vu	Hydrogeology I	St	K	90	1	1	3	f	VÜ				4		
11-02-3271-ek	Hydrogeological Field Trips	bnb	B	-	0	0	2	f	EK				2		
11-02-3466	Hydrochemistry I					1	5	f	6						
11-02-2031-vu	Hydrochemistry	St	K	90	1	1	2	f	VL				3		
11-02-3215-pr	Water Analysis	St	B	-	1	1	3	f	PR				3		
13-K0-M008	Water Treatment Processes	St	mp/K	15/90	1	1	4	f	6						
		bnb	HÜ	-	0	0	2	f	VL				6		
13-K0-0008-vl	Water Treatment Processes					2	2	f	Ü						
13-K0-0008-ue	Water Treatment Processes - Exercise					2	2	f	Ü						
13-K6-M006	Drinking Water	St	mp/K	15/60	1	1	4	f	6						
		bnb	HÜ	-	0	0	2	f	VL				6		
13-K6-0006-vl	Drinking Water					2	2	f	VL						
13-K6-0006-ue	Drinking Water - Exercise					2	2	f	Ü						
13-K5-M009	Water Supply Systems	St	mP	15	1	1	2	f	3						
		bnb	H+Pt	-	0	0	2	f	VL				3		
13-K5-0002-vl	Water Supply Systems					2	2	f	VL						
13-K8-M002	Oxidative Processes in Water Treatment	St	K	90	3	1	4	f	6						
		St	B+Pt	-	2	2	4	f	VU				6		
13-K8-0002-vu	Oxidative Processes in Water Treatment					4	4	f	VU						
13-K6-M001	Applied (Environmental) Microbiology for Engineers	St	mp/K	15/60	3	1	4	f	6						
		St	H/B+Pt	-	2	2	4	f	S				6		
13-K6-0001-se	Applied (Environmental) Microbiology for Engineers					4	4	f	S						
13-K6-M002	Mathematical Simulation in Wastewater Treatment	St	mp/K	15/90	3	1	4	f	6						
		St	HÜ/B/Pt	-	2	2	4	f	S				6		
13-K6-0002-se	Mathematical Simulation in Wastewater Treatment					4	4	f	S						
13-K8-M001	Pollutants in the Water Cycle	St	K	90	1	1	4	f	6						
		bnb	B+Pt	-	0	0	4	f	VU				6		
13-K8-0001-vu	Pollutants in the Water Cycle: Sources and Fate in the Aquatic Environment					4	4	f	VU						
11-02-2219	Groundwater Modelling					1	4	f	6						
11-02-2134-vu	Introduction to Groundwater Modelling	St	K	90	1	1	2	f	VÜ				3		
11-02-2133-vu	Advanced Groundwater Modelling	St	H	-	1	1	2	f	VÜ				3		
11-02-2229	Isotopes Hydrology and Dating	St	K	60	1	1	2	f	3						
11-02-3253-vl	Isotopes Hydrology and Dating					2	2	f	VÜ				3		
11-02-2239	Tracer Techniques	St	H	-	1	1	2	f	3						
11-02-3254-vu	Tracer Techniques					2	2	f	VÜ				3		
11-02-2310	Geohydraulics and Well Construction	St	K	90	1	1	4	f	6						
11-02-2163-vu	Geohydraulics and Well Construction					4	4	f	VÜ				6		
11-02-3460	Geothermal Engineering	St	K	90	1	1	4	f	6						
11-02-3460-vu	Geothermal Engineering					4	4	f	VÜ				6		
11-02-3408	Geoinformation Systems					1	6	f	6						
11-02-1326-vu	GIS I (Techniques)	St	H	-	1	1	3	f	PR				3		
11-02-2243-vu	GIS II (Case studies)	St	K	90	1	1	3	f	VÜ					3	
11-02-3416	Remote Sensing and Statistics					1	4	f	6						
11-02-2244-vu	Remote Sensing in Geology	St	H	-	1	1	2	f	VÜ				3		
11-02-2183-vu	Statistics	St	K	60	1	1	2	f	VÜ				3		
13-K3-J021	Sustainable Waste Management and Life Cycle Assessment Application	St	K	90	1	1	4	f	6						
		bnb	Pt	-	0	0	2	f	VL				6		
13-K3-0021-vl	Sustainable Waste Management and LCA Application					2	2	f	VL						
13-K3-0021-ue	Sustainable Waste Management and LCA Application - Exercise					2	2	f	Ü						
<b>C2 Other Elective Modules (0 - 24 CP)</b>															
	Possibility to choose modules from the Hydrogeology specialisation that are not included in C1.							f							
<b>Master-Thesis</b>															
11-02-5001	Master Thesis	St	Th		1	1	-	o	30						
	Master Thesis					1	-	o	-					30	
<b>Total</b>															
											120	30	30	30	30