

Selection table *Materials Specialization I & II – WS 2020/2021*

Master Program Materials Science

Basic rules:

Two topics must be chosen. Each must be studied with 12 to 18 CP. Total sum on both 30 CP. Within a topic, rules apply as stated in the table:

				Turnus	Next begin
Topic: Advanced Materials Characterization					
	Solid State Spectroscopy (Dressel/Keimer); Module	9 CP	opt.	SS	2021
	Diffraction Methods in Materials Science (Zotov); Module	6 CP	opt.	SS	2021
	Physikalische Chemie III (Statistische Thermodynamik, Streu- und Diffraktionsmethoden mit Übung und Praktikum) (Gießelmann)	12 CP	opt.	SS	2021
	High Resolution and Analytical Microscopy (Stender/Schmitz)	6 cp	opt.	SS	2021
Topic: Functional Materials					
	Liquid Crystals (Gießelmann/Laschat)	6 CP	opt	WS every two years	2020
	Semiconductor Physics (Weis); Semiconductor Physics	9 CP	opt.	WS over two Semesters	2020
	Advanced Experimental Physics (Wrachtrup/Bechinger)	9 CP	opt.	WS	2020
	Advanced Condensed Matter Physics (Wrachtrup)	6 CP	opt.	SS	2021
	Materials for Energy Technologies	6 CP	opt.	SS	2021
	Polymer Electronics (Ludwigs)	3 CP	opt.	WS	2020
	Bioinspired Approaches in Materials Science (Bill)	6 CP	opt.	SS every two years	2021
Topic: Inorganic Materials Chemistry					

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	Inorganic Materials Chemistry for Material Scientists (Niewa)	12 CP	comp.	WS	2020
	Solid State and Materials Chemistry (Niewa)	6 CP	opt.	SS	2021
	Advanced Inorganic Synthesis Chemistry (Niewa)	6 CP	opt.	WS	2020
Topic: Materials Theory and Simulation					
	Computational Chemistry (Kästner/Köhn)	6 CP	opt.	SS	2021
	Methoden der Werkstoffsimulation (Schmauder)	6 CP	opt	WS	2020
	Molecular Quantum Mechanics (Kästner/Köhn)	6 CP	opt	WS	2020
	Advanced Condensed Matter Physics (Bechinger)	6 CP	opt.	SS	2021
	Solid State Theory (Büchler)	9 CP	opt.	SS	2021
	Material design by ab-initio methods (Grabowski)	6 CP	opt.	WS	2020
	Computer-Aided Materials Science (Grabowski)	6 CP	opt.	SS	2022
Topic: Metals and Structural Materials					
	Werkstoffe und Festigkeit (Seidenfuß/Klenk(Stumpfrock/Werz/Büttner) and/or	at least 6 CP	comp.	WS&SS	2020
	Grundlagen der Keramik und Verbundwerkstoffe (Gadow) and/or			WS&SS	
	Alloy Design, Intermetallics and Superalloys (Stender/Schmitz)			SS (every two years)	2020

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					2022
	Diffraction Methods in Materials Science (Zotov)	6 CP	opt.	SS	2021
	Werkstoffe und Fertigungstechnik technischer Kohlenstoffe (Kern)	3 CP	opt	WS&SS	2020
	Werkstoffeigenschaften (Klenk)	6 CP	opt.	WS&SS	2020
	Laboratory course electron microscopy	3 CP	opt.	irregularly	
Topic: Nanomaterials and Nanostructures					
	Fundamentals of Microelectronics (Burghartz)	6CP	opt.	SS	2021
	Advanced CMOS Devices and Technology (Burghartz)	6 CP	opt.	SS	2021
	Thin film materials and coatings (Schmitz/Richter)	3 CP	opt.	WS	2020
	Emulsions & Foams (Stubenrauch/Sottmann)	3 CP	opt.	SS every two years	2021
	Nanoparticles and –motors: properties and materials (Fischer)	3 CP	opt.	SS every two years	2021
	Surfaces & Colloids (Stubenrauch/Fischer/Sottmann)	6 CP	opt.	WS every two years)	2020
Topic: Plastics Engineering					
	Kunststofftechnik - Grundlagen und Einführung (Bonten)	6 CP	comp.	WS	2020
	Charakterisierung und Prüfung von Polymeren und Kunststoffen (Bonten)	3 CP	Comp.	WS	2020
	Faserkunststoffverbunde (Kreutzbruck)	3CP	Comp.	SS&WS	2020

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	Kunststoffaufbereitung und Kunststoffrecycling (Kroh/Bonten)	3 CP	opt.	WS	2020
	Kunststoff-Werkstofftechnik 1 (Bonten)	3 CP	opt.	WS	2020
	Grundlagen der zerstörungsfreien Prüfung (Kreutzbruck)	3CP	Opt.	SS&WS	2020
Topic: Soft Matter and Biomaterials					
	Liquid Crystals (Gießelmann/Laschat)	6 CP	opt.	WS every two years)	2020
	Polymer Electronics (Ludwigs)	3 CP	opt.	WS	2020
	Surfaces and Colloids (Sottmann/Stubenrauch)	6 CP	opt.	WS every two years)	2021
	Bioinspired Approaches in Material Science (Bill)	6 CP	opt.	SS every two years)	2021
	Emulsions & Foams (Stubenrauch/Sottmann)	3 CP	opt.	SS every two years	2021
	Nanoparticles and –motors: properties and materials	3 CP	opt.	SS every two years	2021