AMIS: M1 TUD HOME UNIVERSITY (first year students):

AUTUMN SEMESTER			
Compulsory courses	Name	ECTS	Comments
01-22-0M05/6	Technology and Innovation Management *	6	I&ENT
11-01-4191	Inno-Project Ia	3	I&ENT
11-01-4104	Functional Materials	6	
11-01-4105	Surfaces and Interfaces	5	
11-01-4109	Micromechanics for Materials Science **	6	
11-01-4101	Research Lab I	4	Lab work
	TOTAL	**30**	
SPRING SEMESTER			
Compulsory course	Name	ECTS	
11-01-4107	Advanced Characterization Methods of Materials Science	6	
11-01-4106	Theoretical Methods in Materials Science	6	
11-01-4199	Advanced Research Lab (7)***	7	I&ENT
11-01-4002-ov	Career Coaching	0	I&ENT
11-01-4192	Inno-Project Ib	3	I&ENT
11-01-4193	Summer Camp	3	I&ENT
Elective courses ****			
11-01-3029	Advanced Light Microscopy	4	
11-01-2030	Applied Fluoroorganic Chemistry: Synthesis, Func. Mat., Pharma.	4	
11-01-8191	Ceramic Materials: Syntheses and Properties. Part I	4	
11-01-1630	Circular Materials	5	
11-01-8291	Density Functional Theory: A Practical Introduction	5	
11-01-7300	Electrochemistry in Energy Applications I:	4	
01-62-2G04	Entrepreneurship*	5	I&ENT
01-27-2M03/6	Entrepreneurial Strategy, Management & Finance *	6	I&ENT
11-01-2005	Fundamentals and Technology of Solar Cells	4	
11-01-2008	Graphen and Carbon Nanotubes - from fundamentals to applications	4	
11-01-2024	Hysteresis in Magnetic Materials	4	
11-01-2017	In-situ Transmission Electron Microscopy	4	
11-01-2004	Materials Science of Thin Films	4	
11-01-9812	Phase Transitions in Materials	4	
11-01-3030	Polymer Processing	4	
11-01-8411	Properties of Ferroelectric Materials	4	
11-01-2019	Quantum Materials: Theory, Numerics, and Applications	4	
11-01-9904	Rietveld Analysis of powder diffraction data	4	
11-01-7060	Scanning probe microscopy in materials science	4	
11-01-9062	Scanning Transmission Electron Microscopy for Materials Science	4	
11-01-2002	Spintronics	4	
11-01-4110	**Sustainable Materials**	6	
	TOTAL	**30**	

* The course "***Technology and Innovation Management***" can be replaced by the course "***Entrepreneurship***" or ***"Entrepreneurial Strategy, Management & Finance***. You only have to pass one of these three "Business modules"

** The Course "***Micromechanics for Materials Science***" can be replaced by the course "***Quantum Mechanics for Materials Science (6 ECTS)***"

*** The Course Advanced Research Lab (7) can be replaced by the course **Advanced Research Lab (8)** 11-01-4197 with **8 ECTS**

**** All eligible ***"Elective courses"*** are listed in "*elective courses M. Sc. Materials Science*" in the TUCaN system. Only the following courses cannot be chosen: "Materials Science for Renewable Energy Systems "or "Advanced Research Lab". Students without a bachelor degree in Materials Science or Physics can also use the course "Concepts in Materials Physics (6 ECTS)" on request.

° The module "**Discussion with Mentor**" is voluntary but recommended

AMIS: M2 TUD HOST UNIVERSITY (second year students)

AUTUMN SEMESTER			
Code	Name	ECTS	Comments
Compulsory			
11-01-4109	Micromechanics for Materials Science *	6	
11-01-4101	Research Lab I	4	
01-22-0M05/6	Technology and Innovation Management (incl. Inno Project II)	6	I&ENT
	AMIS Winter School in Aalto	0	
Elective courses **			
11-01-4197	Advanced Research Lab (8)	8	
11-01-7342	Ceramic Materials: Syntheses and Properties. Part II	4	
11-01-7562	Computational Material science	5	
11-01-2009	Concepts in Materials Physics	6	
11-01-7301	Electrochemistry in Energy Applications II:	4	
11-01-8131	Engineering Microstructures - Processing, Char. and Application	4	
11-01-2027	Finite Element Simulation in Material Science	4	
11-01-9063	Focused Ion Beam Microscopy: Basics and Applications	4	
11-01-8202	Fundamentals and Techniques of Modern Surface Science	4	
11-01-2016	Interfaces - From wetting to friction	4	
11-01-7892	Introduction to Scanning Electron Microscopy	1	
13-K3-M020	Life cycle assessment of products and systems	3	
11-01-2031	Machine Learning for Materials Science	6	
11-01-2001	Magnetism and Magnetic Materials	4	
11-01-7292	Materials Chemistry	4	
11-01-7042	Materials research with energetic ion beams, and nanotech.	4	
11-01-3018	Mathematical Methods in Materials Science	4	
11-01-9332	Mechanical Properties of Ceramic Materials	4	
11-01-2006	Mechanical Properties of Metals	4	
11-01-2026	Organic Functional Materials: From LCD to Molecular Circuits	4	
11-01-3031	*Polymer Materials*	6	
11-01-2023	Porous Ceramics for Energy-Related Applications	4	
11-01-4004	Quantum Mechanics for Materials Science	6	
11-01-8162	Semiconductor Interfaces	4	
11-01-2035	Smart design and adv. processing of next-generation materials	4	
	TOTAL	**30**	
SPRING SEMESTER	THESIS	**30**	

* The Course "***Micromechanics for Materials Science***" can be replaced by the course "***Quantum Mechanics for Materials Science (6 ECTS)***"

** All eligible ***"Elective courses"*** are listed in "*elective courses M. Sc. Materials Science*" in the TUCaN system. Only the following courses cannot be chosen: "Materials Engineering", "Materials Science for Renewable Energy Systems", "Functional Materials", "Surf aces and Interfaces" or "Advanced Research Lab". Students without a bachelor degree in Materials Science or Physics can also use the course "Concepts in Materials Physics (6 ECTS)" on request.

° The module "**Discussion with Mentor**" is voluntary but recommended