

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

AUTUMN SEMESTER			
<b>Compulsory courses</b>	Name	ECTS	Comments
01-27-2M01/6	Venture Valuation *	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	<b>30</b>	
SPRING SEMESTER			
<b>Compulsory course</b>	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
<b>Elective courses ***</b>			
11-01-3029	Advanced Light Microscopy	4	
11-01-8191	Ceramic Materials: Syntheses and Properties. Part I	4	
11-01-8291	Density Functional Theory: A Practical Introduction	4	
11-01-2025	Dislocations in Ceramics	4	
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	
11-01-2022	Materials chemistry in electrocatalysis for energy applications	4	
11-01-7042	Materials research with energetic ion beams	4	
11-01-2004	Materials Science of Thin Films	4	
11-01-7070	Micromechanics and Nanostructured Materials	4	
11-01-9812	Phase Transitions in Materials	4	
11-01-3030	<i>Polymer Processing</i>	4	
11-01-8411	Properties of Ferroelectric Materials	4	
11-01-2019	Quantum Materials: Theory, Numerics, and Applications	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	
11-01-2021	Technology of Nanoobjects	4	
11-01-2018	Tunable properties in nanomaterials	4	
	TOTAL	<b>30</b>	

\* The course "**Venture Valuation**" 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)**"

\*\*\* 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 also compulsory

## AMIS: M2 TUD HOST UNIVERSITY (second year students)

AUTUMN SEMESTER			
Code	Name	ECTS	Comments
<b>Compulsory</b>			
11-01-4109	Micromechanics for Materials Science *	6	
11-01-4101	Research Lab I	4	
01-27-2M01/6	Venture Valuation (incl. Inno Project II)	6	I&ENT
	AMIS Winter School in Aalto	0	
<b>Elective courses **</b>			
11-01-7342	Ceramic Materials: Syntheses and Properties. Part II	4	
11-01-2009	Concepts in Materials Physics	6	
11-01-7562	Computational Material science	5	
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	
11-01-4197	Advanced Research Lab (8)	8	
11-01-7892	Introduction to Scanning Electron Microscopy	1	
13-K3-M020	Life cycle assessment of products and systems	3	
11-01-2001	Magnetism and Magnetic Materials	4	
11-01-7292	Materials Chemistry	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	
11-01-2028	Metastable Materials: Structure, Properties and Processing	4	
11-01-7070	Micromechanics and Nanostructured Materials	4	
11-01-9090	Modern steels for automotive applications	4	
11-01-2026	Organic Functional Materials: From LCD to Molecular Circuits	4	
11-01-3031	<i>Polymer Materials</i>	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	
	TOTAL	<b>30</b>	
<b>SPRING SEMESTER</b>			
	THESIS	<b>30</b>	

\* 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 also compulsory