

Detailed study plan with changes according to faculty council decisions as well as detailed information

Status: 18.10.2023

Module e no.	Module name	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	LP
		Semester	Semester	Semester	Semester	Semester	Semester	Semester	Semester (M)	Semester (M)	Semester	
		V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	
Mandatory area												
MW- WW-01 ^{16, 22}	Fundamentals of Mathematics	4/2/0/1 PL										6
MW- WW-02	General and Inorganic Chemistry	4/1/1 2xPL										7
MW- WW-03	Business Administration and Language Skills - Language Competence - Business Administration	2 SWS SK PL (2) 2 SWS SK	2/1/0/1 PL (3) 2/1/0/1									5
MW- WW-04 ¹⁰	Physics	2/1/0/1 (3)	2/1/2/1 2xPL (5)									8
MW- WW-05 ^{1, 16}	Engineering Mechanics	2/2/0/1 PL (5)	2/2/0/1 PL (4)									9
MW- WW-12 ^{1, 16, 22}	Fundamentals of Materials Science	4/1/1/0 PL (7)	4/1/1/0 2xPL (8)									15
MW- WW-06 ^{1, 10, 11, 12, 22}	Engineering Mathematics		4/2/0/1 PL									6
MW- WW-07	Organic and Physical Chemistry - Organic Chemistry - Physical Chemistry		2/1/0/1 PL (4) 2/1/0/1	2/1/0/1 PL (3) 2/1/0/1								7
MW- WW-08	Fundamentals of Electrical Engineering			2/2/0/1 PL								5
MW- WW-09 ^{1, 11, 22}	Special Topics of Mathematics			2/2/0/1 (4)	2/2/0/1 PL (5)							9

Module no.	Module name	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester (M)	9 th Semester (M)	10 th Semester	LP
		V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	
MW-WW-10 12, 13, 16, 25	Design Theory			2/2/0/1 (4)	2/2/0/1 PL (4)							8
MW-WW-11 13, 16, 25	Computer Science - Computer Application in Mechanical Engineering - Software and Programming Technology			2/2/0/0 PL (4) 2/2/0/0	2/1/1/0 2xPL (4) 2/1/1/0							8
MW-WW-13 2, 8, 16	Materials Production and Manufacturing Technology - Production Engineering - Material Production			2/1/0/0 1 day E, PL (4) 2/1/0/0	2/0/0 PL (3) 2/0/0/0							7
MW-WW-14 1, 2	Materials Testing and Materials Diagnostics - Materials Testing - Materials Diagnostics			2/0/1/0 PL (3) 2/0/1/0	2/0/1/0 2xPL (3) 2/0/1/0							6
MW-WW-15 1, 16	Metallic Materials - Heat Treatment and Metallic Materials 1 - Metallic Materials 2			4/0/1/1 PL (5) 4/0/1/1	3/0/0/1 PL (4) 3/0/0/1							9
MW-WW-16 1	Advanced Ceramic Materials				2/0/1/1 2xPL							5
MW-WW-17 1, 16, 22	Polymers and Biomaterials - Polymers - Biomaterials					3/0/1/0 2xPL (5) 3/0/1/0	2/0/0 PL (4) 2/0/0/0					9
MW-WW-18	Computer Simulation in Materials Science					2/0/1/0 PL						5
MW-WW-19	Metallography					2/0/1/0 2xPL						5
MW-WW-20 2, 17, 26	Powder Metallurgy and Sintered Materials					3/0/0/0 (4)	2/0/1/0 2xPL (4)					8

Module no.	Module name	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester (M)	9 th Semester (M)	10 th Semester	LP
		V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	
MW-21 ^{1, 7, 16, 17, 22}	Materials Physics and Materials Chemistry					3/1/0/0 (5)	3/1/0/0 PL (5)					10
MW-22 ³	Materials Science Specialization					4/0/0 PL ¹⁾ (5)	4/0/0 PL ¹⁾ (5)					10
MW-24	General and Engineering-Specific Qualifications in Materials Science					##/##/## PL ²⁾ (2)	##/##/## PL ²⁾ (3)					5
MW-23	Corrosion of Materials and Material Selection in Mechanical Design						4/1/1/0 2xPL					8
MW-25	Subject-Related Internship							15 weeks professional Internship, Project Work 270 h (processing time 26 weeks) with presentation 2xPL				30
MW-27	Additional Technical Qualification in Materials Science								##/##/## PL ³⁾ (5)	##/##/## PL ³⁾ (5)		10
Compulsory elective area												
Elective modules in the area of Fundamentals and Methods ⁴⁾												
MW-21 MW-22 GM01	Computational Materials Science: Continuum Methods								2/1/2/0 2xPL			5

Module no.	Module name	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester (M)	9 th Semester (M)	10 th Semester	LP
		V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	
MW-WW-GM02	Computational Materials Science: Molecular Dynamics									2/1/1/0 2xPL		5
MW-WW-GM03	Basics of Solid State Physics: Bonding								3/1/0/0 PL			5
MW-WW-GM04 ¹ 4, 20	Basics of Solid-State Physics: Thermal Properties									3/1/0/0 PL		5
MW-WW-GM05 15	Quality Assurance and Statistics								2/2/0/0 PL			5
MW-WW-GM06 ⁵	Mechanics of Materials								3/1/0/0 PL			5
MW-WW-GM07	Fatigue, Fracture and Reliability of Materials									4/0/0 PL		5
MW-WW-GM08 29	Electron-, X-ray-, and Ion spectroscopy; High-resolution Microscopy								2/0/0 PL (3)	2/0/0 PL (2)		5
MW-WW-GM09 3, 23	Thermophysical Methods and High Temperature Behavior — Physical Basics — Materials and Test Methods								2/0/0/0 PL (2) 2/0/0/0	2/0/0/0 PL (3) 2/0/0/0		5
MW-WW-GM10	Characterisation of Soft Materials									2/2/0/0 2xPL		5
MW-WW-GM11 ⁵	High-Entropy Alloys									2/2/0/0 2xPL		5

Module no.	Module name	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester (M)	9 th Semester (M)	10 th Semester	LP
		V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	
MW-WW-GM12 19	Competence Atelier: Sustainable Materials agile with Scrum									2/2/0/0 2xPL		5
MW-WW-GM13 15	Competence Atelier: Statistics and Quality Assurance agile with Scrum								2/2/0/0 2xPL			5
MW-WW-GM14 15	Basics of Solid State Physics: Quantum Mechanical Bonds									3/1/0/0 PL		5
MW-WW-GM15 23	High Temperature Behaviour and High Temperature Metallic Materials - Physical Fundamentals - Materials and Test Methods								2/0/0/0 PL (2) 2/0/0/0	2/0/0/0 PL (3) 2/0/0/0		5
Elective modules in the field of Applied Materials Science ⁴⁾												
MW-WW-AW01 23	Resorbable Biomaterials								2/1/1/0 2xPL			5
MW-WW-AW02 5	Materials for Implantology								2/2/0/0 2xPL			5
MW-WW-AW03 15	Applied Biomechanics								2/2/0/0 2xPL			5
MW-WW-AW04 3-15	Biofunctionalized Surfaces									2/2/0/0 2xPL		5

Module no.	Module name	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester (M)	9 th Semester (M)	10 th Semester	LP
		V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	
MW-WW-AW05	Tissue Engineering									2/1/1/0 2xPL		5
MW-WW-AW06	Dental Materials									2/2/0/0 2xPL		5
MW-WW-AW07	Metallic Functional Materials								4/2/0/0 PL (5)	0/0/2/0 PL (5)		10
MW-WW-AW08	Polymer and Ceramic Functional Materials - Ceramic Functional Materials - Polymeric Functional Materials								2/0/0 PL (3) 2/0/0/0	2/0/0 PL (2) 2/0/0/0		5
MW-WW-AW09⁵	Microelectronics Materials: Basics and Diagnostics								2/0/0/0 (2)	2/0/0 PL (3)		5
MW-WW-AW10²⁶	Materials for Power Engineering									4/0/0 PL		5
MW-WW-AW11	Surface Engineering Methods								2/1/1/0 2xPL			5
MW-WW-AW12³	Composite Materials								2/0/0 PL (2)	2/0/0 PL (3)		5
MW-WW-AW13	Nanostructured Materials								2/1/1/0 PL (5)	2/1/1/0 2xPL (5)		10
MW-WW-AW14^{27, 28}	Computational Methods								3/0/1/0 PL (5)	3/0/1/0 PL (5)		10

Module no.	Module name	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester (M)	9 th Semester (M)	10 th Semester	LP
		V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	V/Ü/P/T	
MW-WW-AW15 ⁸	Applied Nanotechnology - Environmental Nanotechnology - Seminar on Current Topics in Materials Science - Molecular Electronics								2/0/1/0 2xPL (5) 2/0/1/0	3/3/0/0 2xPL (5) 1/1/0/0 2/2/0/0		10
MW-WW-AW16 ⁶	Elastomer Materials								2/0/1/0 2xPL (3)	1/1/0/0 PL (2)		5
MW-WW-AW17 ^{9, 24, 28}	Simulation of Li-Ion Batteries									2/1/1/0 PL		5
MW-WW-AW18 ¹⁵	Biofunctionalized Surfaces									2/2/0/0 2xPL		5
MW-WW-AW19 ¹⁵	Competence Atelier: Biomechanics agile with Scrum								2/1/1/0 2xPL			5
Diploma thesis											27	27
Colloquium											3	3
Credit points		30	30	31	29	31	29	30	30 ⁵⁾	30 ⁵⁾	30	300

Annex

M	Mobility window according to § 6 Paragraph 1 Sentence 4 Study Regulations
V	Lecture
Ü	Exercise
P	Practical course
SK	Language Course
T	Tutorial

E	Excursion
PL	Examination performance(s)
LP	Credit points - in brackets () pro rata allocation to individual semesters according to Workload
SWS	Lecture hours per week
1)	The number of required examinations can be found in the catalogue Specialisation in Materials Science.
2)	Alternatively, at the student's choice, Courses totalling 4 SWS including the examination performances specified in accordance with the catalogue General and Engineering-Specific Qualifications Materials Science.
3)	Alternatively, at the student's choice, Courses with a total volume of 8 SWS including the examination performances specified according to the catalogue Technical Additional Qualification Materials Science.
4)	Modules amounting to 50 credit points are to be selected, of which at least modules amounting to 25 credit points from the area of Fundamentals and Methods.
5)	The distribution of credit points may vary slightly depending on the individually chosen elective modules.
1	Extension according to § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma Programme in Materials Science of 29 April 2019 or Bachelor's Programme in Materials Science of 28 April 2019 according to the resolution of the Faculty Council of 15.04.2020 Adjustment in the field Applicability.
2	Extension in accordance with § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma Programme in Materials Science of 29 April 2019 or Bachelor's Programme in Materials Science of 28 April 2019 in accordance with the resolution of the Faculty Council of 15.04.2020 Adjustment in the field Responsible lecturer.
3	Extension according to § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma Programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 15 April 2020 Adjustment in the field Responsible lecturer.
5	Extension in accordance with § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma Programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 15.04.2020 Deletion of the Course offering.
6	Extension in accordance with § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma Programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 15.04.2020 Extension of the Course offerings
7	Extension in accordance with § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma Programme in Materials Science of 29 April 2019 or Bachelor's Programme in Materials Science of 28 April 2019 in accordance with the resolution of the Faculty Council of 17.03.2021 Adjustment in the field Responsible lecturer.
8	Correction of the semester-based SWS distribution.
9	Extension in accordance with § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma Programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 21 April 2021 Extension of the range of Courses.
10	Extension according to § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma Programme in Materials Science of 29 April 2019 or Bachelor's Programme in Materials Science of 28 April 2019 according to the resolution of the Faculty Council of 21.04.2021 Adjustment in the field Applicability.
11	Extension according to § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma Programme in Process Engineering and Natural Materials Engineering of 29 April 2019, the Bachelor Programme in Process Engineering and Natural Materials Engineering of 28 April

2019 or Diploma Postgraduate Programme in Process Engineering and Natural Materials Engineering of 15 February 2020 according to the decision of the Faculty Council of 15 April 2020 Adjustment in the field Applicability.

Extension in accordance with § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma Programme in Mechanical Engineering of 17 May 2019 or Bachelor's Programme in Mechanical Engineering of 17 May 2019 or Diploma Postgraduate Programme in Mechanical Engineering of 17 January 2020 in accordance with the resolution of the Faculty Council of 21.04.2021 Adjustment in the field Applicability.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science dated 29 April 2019 or Bachelor's degree Programme in Materials Science dated 28 April 2019 in accordance with the resolution of the Faculty Council dated 20.10.2021 Adjustment in the field Responsible lecturer.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 20.10.2021 - will not be offered in WiSe 2021/2022.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 20.04.2022 Replacing the courses offered.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 or Bachelor's degree Programme in Materials Science of 28 April 2019 in accordance with the resolution of the Faculty Council of 20.04.2022 Adjustment in the field Usability.

Correction of SWS distribution and merging of courses.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 20.04.2022 - will not be offered in SoSe 2022.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 20.04.2022 Extension of the range of courses.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 20.04.2022 Adjustment in the field Frequency of the module - will not be offered in SoSe 2022.

Extension in accordance with § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma degree programme in Materials Science of 19.10.2022 in accordance with the resolution of the Faculty Council of 19.10.2022 Deletion of the course offering.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 or Bachelor's degree Programme in Materials Science of 28 April 2019 in accordance with the resolution of the Faculty Council of 19.10.2022 Adjustment in the field Usability.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 19.10.2022 in accordance with the resolution of the Faculty Council of 19.10.2022 Replacing the courses offered.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 19.10.2022 - will not be offered in WiSe 2022/2023.

Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science dated 29 April 2019 or Bachelor's degree Programme in Materials Science dated 28 April 2019 in accordance with the resolution of the Faculty Council dated 19.10.2022 Adjustment in the field Responsible lecturer.

- 26 Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science dated 29 April 2019 or Bachelor's degree Programme in Materials Science dated 28 April 2019 in accordance with the resolution of the Faculty Council dated 19.04.2023 Adjustment in the field Responsible lecturer.
- 27 Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 in accordance with the resolution of the Faculty Council of 19.04.2023 - will not be offered in SoSe 2023.
- 28 Extension in accordance with § 6 para. 6 and § 10 para. 2 Study Regulations for the Diploma degree programme in Materials Science of 29 April 2019 subject to the decision of the Faculty Council of 18.10.2023 - will not be offered in WiSe 2023/2024.
- 29 Extension in accordance with § 6 Para. 6 and § 10 Para. 2 Study Regulations for the Diploma degree programme in Materials Science of 19.10.2022 in accordance with the resolution of the Faculty Council of 18.10.2023 Deletion of the course offering.