# Course of Study Materials Science and Engineering (Study Cohort w25)

Legend

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| Core Qualification Compulsory | Specialisation Compulsory | Focus Compulsory | Thesis Compulsory |
| Core Qualification Elective Compulsory | Specialisation Elective Compulsory | Focus Elective Compulsory | Interdisciplinary complement |

Sample course plan C  Master Materials Science and Engineering (MSEMS)

Specialisation Engineering Materials

| LP | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Applied Computational Methods for Material Science** | | | **Advanced Laboratory Materials Sciences** | | | **Advanced Functional Materials** | | | **Master Thesis** | |
| 2 | Applied Computational Methods for Material Science | PBL | 4 | Advanced Laboratory Materials Sciences | PR | 6 | Advanced Functional Materials | SE | 2 | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | **Materials Physics and Atomistic Materials Modeling** | | | **Mechanical Properties** | | | **Study work on Modern Issues in the Materials Sciences** | | | | |
| 8 | Materials Physics | VL | 2 | Mechanical Behaviour of Brittle Materials | VL | 2 | | | | | |
| 9 | Quantum Mechanics and Atomistic Materials Modeling | VL | 2 | Dislocation Theory of Plasticity | VL | 2 | | | | | |
| 10 | Exercises in Materials Physics and Modeling | GÜ | 2 | Exercise on mechanical properties | HÜ | 2 | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | **Phenomena and Methods in Materials Science** | | | **Multiphase Materials** | | | | | | | |
| 14 | Phase equilibria and transformations | VL | 2 | Lecture: Multiscale Materials | VL | 3 | | | | | |
| 15 | Experimental Methods for the Characterization of Materials | VL | 2 | Polymer Composites | VL | 3 | | | | | |
| 16 | Übung zu Phänomene und Methoden der Materialwissenschaft | HÜ | 2 | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | **Polymers** | | | **Structure and properties of fibre-polymer-composites** | | | **Metallic and Hybrid Light-weight Materials** | | | | |
| 20 | Structure and Properties of Polymers | VL | 2 | Structure and properties of fibre-polymer-composites | VL | 2 | Joining of Polymer-Metal Lightweight Structures | VL | 2 | | |
| 21 | Processing and design with polymers | VL | 2 | Structure and properties of fibre-polymer-composites | HÜ | 1 | Joining of Polymer-Metal Lightweight Structures | PR | 1 | | |
| 22 | | | | Structure and properties of fibre-polymer-composites | PBL | 2 | Metallic Light-weight Materials | VL | 2 | | |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 | | | | **Fatigue of metallic structural materials and methods for extending service life** | | | | | | | |
| 26 | | | | Fatigue of metallic structural materials | VL | 2 | | | | | |
| 27 | | | | Method for life extension | VL | 2 | | | | | |
| 28 | | | | | | | | | | | |
| 29 | | | | | | | | | | | |
| 30 | | | | | | | | | | | |

Business & Management (from catalogue) - 6LP

Non-technical Courses for Master (from catalogue) - 6LP

The choice of courses from the catalogue is flexible (depends on the semestral work load), provided the necessary number of required credits is reached.