

# Course of Study Materials Science (Study Cohort w21)

| Legend | Core qualification Compulsory          | Specialisation Compulsory          | Focus Compulsory          | Thesis Compulsory            |
|--------|--|------------------------------------|---------------------------|------------------------------|
|        | Core qualification Elective Compulsory | Specialisation Elective Compulsory | Focus Elective Compulsory | Interdisciplinary complement |

## Sample course plan A Master Materials Science (MAMS)

| Specialisation Modeling                                 |   | Semester 2 |  | Semester 3 |  | Semester 4 |                      |        |
|---|---|------------|--|------------|--|------------|----------------------|--------|
|   | Form  | Hrs/wk     | Form   | Hrs/wk     | Form   | Hrs/wk     | Form                 | Hrs/wk |
| 1   | <b>Phenomena and Methods in Materials Science</b>               |            | <b>Multiphase Materials</b>                    |            | <b>Advanced Functional Materials</b>                         |            | <b>Master Thesis</b> |        |
| 2   | Phase equilibria and transformations VL 2                       |            | Lecture: Multiscale Materials VL 3             |            | Advanced Functional Materials SE 2                           |            |                      |        |
| 3   | Experimental Methods for the Characterization of Materials VL 2 |            | Polymer Composites VL 3                        |            |  |            |                      |        |
| 4   |   |            |  |            |  |            |                      |        |
| 5   |   |            |  |            |  |            |                      |        |
| 6   |   |            |  |            |  |            |                      |        |
| 7   | <b>Materials Physics and Atomistic Materials Modeling</b>       |            | <b>Advanced Laboratory Materials Sciences</b>  |            | <b>Study work on Modern Issues in the Materials Sciences</b> |            |                      |        |
| 8   | Materials Physics VL 2  |            | Advanced Laboratory Materials Sciences PR 6    |            |  |            |                      |        |
| 9   | Quantum Mechanics and Atomistic Materials Modeling VL 2         |            |  |            |  |            |                      |        |
| 10  | Exercises in Materials Physics and Modeling GÜ 2                |            |  |            |  |            |                      |        |
| 11  |   |            |  |            |  |            |                      |        |
| 12  |   |            |  |            |  |            |                      |        |
| 13  | <b>Applied Computational Methods for Material Science</b>       |            | <b>Mechanical Properties</b>                   |            |  |            |                      |        |
| 14  | Applied Computational Methods for Material Science PBL 3        |            | Mechanical Behaviour of Brittle Materials VL 2 |            |  |            |                      |        |
| 15  |   |            | Dislocation Theory of Plasticity VL 2          |            |  |            |                      |        |
| 16  |   |            |  |            |  |            |                      |        |
| 17  |   |            |  |            |  |            |                      |        |
| 18  |   |            |  |            |  |            |                      |        |
| 19  | <b>Materials Modeling</b>                                       |            | <b>Quantum Mechanics of Solids</b>             |            | <b>Nonlinear Structural Analysis</b>                         |            |                      |        |
| 20  | Material Modeling VL 2  |            | Quantum Mechanics of Solids VL 2               |            | Nonlinear Structural Analysis VL 3                           |            |                      |        |
| 21  | Material Modeling GÜ 2  |            | Quantum Mechanics of Solids GÜ 1               |            | Nonlinear Structural Analysis GÜ 1                           |            |                      |        |
| 22  |   |            |  |            |  |            |                      |        |
| 23  |   |            |  |            |  |            |                      |        |
| 24  |   |            |  |            |  |            |                      |        |
| 25  |   |            |  |            | <b>Continuum Mechanics</b>                                   |            |                      |        |
| 26  |   |            |  |            | Continuum Mechanics VL 2                                     |            |                      |        |
| 27  |   |            |  |            | Continuum Mechanics Exercise GÜ 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.

