

003366The following study plan is tentative: changes can happen each semester (last update: 2018.10.09)

Semester 1: Adaptation Phase

| Modules | | UdS | | |
|---|---|-------------|--------|------|
| | Course | Responsible | Code | ECTS |
| I. Structure & Properties | Microstructure Development | Busch | | 3 |
| | Continuum Mechanics | Diebels | KonM | 4 |
| | Thermodynamics of Heterogeneous Materials | Possart | ThS | 5 |
| | Intermetallic Compounds | Busch | IPhas | 3 |
| | Theoretical Material Physics | Müser | ? | ? |
| | Computer Simulation in Material Physics | Müser | ? | ? |
| | Experimental Mechanics | Diebels | ExMech | 4 |
| II. Materials Characterization | 3D Analysis of Micro and Nanostructures - Basics | Mücklich | 3DMN1 | 3 |
| | Methodology 2: Basics of Microscopy and Spectroscopy | Motz | TeG | 5 |
| | Methodology 4: High Resolution Microscopy II (TEM, SPM) | Motz | HMV2 | 3 |
| | Diffraction Methods | Mücklich | BEUG | 5 |
| III. Materials Engineering & Processing Technologies | Machining Technologies | Bähre | Spanf | 3 |
| | Surface Engineering | Busch | Otech | 3 |
| | Nonferrous Metals I | Busch | NEM1 | 3 |

| Modules | | UPC | | |
|---|--|-------------|------|------|
| | Course | Responsible | Code | ECTS |
| I. Structure & Properties | Physical Metallurgy | Prado | | 5 |
| | Physical Properties of Materials | Jiménez | | 5 |
| | Mechanical Behaviour of Materials | Alcala | | 5 |
| II. Materials Characterization | Microstructural Materials Characterisation | Manero | | 5 |
| III. Materials Engineering & Processing Technologies | Micro-Mechanical Design of Materials, Nanomechanics and Coatings | Llanes | | 5 |

| Modules | | LTU | | |
|---|--|---------------|---------------|------------|
| | Course | Responsible | Code | ECTS |
| I. Structure & Properties | Deformation and Fracture | Akthar | T7001T | 7,5 |
| | Material Science & Engineering I | Wallström | T0004T | 7,5 |
| II. Materials Characterization | <i>Advanced Materials Characterisation Techniques (Course given during the second semester at LTU)</i> | <i>Akthar</i> | <i>T7003T</i> | <i>7,5</i> |
| III. Materials Engineering & Processing Technologies | Materials Technology and Materials Selection | Wallström | T0003T | 7,5 |

Comment: courses in italic might be chosen depending on the student backgrounds.

| Modules | | UL | | |
|---|--|-------------|------|------|
| | Course | Responsible | Code | ECTS |
| I. Structure and Properties | Crystal Structures and Defects | Redjaimia | | 5 |
| | Physical Properties of Materials | Bauer | | 5 |
| | Materials Mechanics I: Viscoelasticity | Ayadi | | 4 |
| | Macromolecular Chemistry | Six | | 4 |
| II. Materials Characterization | Materials Characterisation | Bauer | | 5 |
| III. Materials Engineering & Processing Technologies | Chemical Reaction Engineering | SIMONNOT | | 3 |

Description:

Module I: Microstructure, nanostructure, materials physics, crystal structures, structural, mechanical and functional, properties

Module II: Diffraction, microscopy, spectroscopy, materials testing, micro/nano/atomic scale

Module III: Materials selection, deposition techniques, materials for special applications, chemical eng., processing technologies

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Track 1: Advanced Metallic Materials - Design, characterization and processing

| UdS | | | | |
|--|---|-----------------------|--------------|-------------|
| | Course | Responsible | Code | ECTS |
| Semester 2 | Steel II | Busch | Stahl | 3 |
| | Kinetics of Phase Transformation | Busch | Kin | 3 |
| | Powder Metallurgy | Busch | PuMet | 3 |
| | Nonferrous Metals II | Busch | NEM2 | 3 |
| | Amorphous Metals | Busch | AmoMet | 3 |
| | Machining Technologies | Bähre | Spanf | 3 |
| | Precision Machining Technologies | Bähre | FBTec | 3 |
| | 3D Analysis of Micro and Nanostructures - Advanced Methods | Mücklich | 3DMN2 | 3 |
| | Methodology 7: Nano- and micromechanical testing methods | Motz | NMMMM | 3 |
| | Material Modelling | Diebels | MaMo | 4 |
| | Methodology 3: High Resolution Microscopy I (SEM, EDS) | Motz | HMV1 | 4 |
| | Laser Treatment of Materials - Applications | Mücklich | Las2 | 4 |
| | Physical Acoustics 1 | Rabe | ? | 4 |
| | Computer Simulation in Materials Physics | Müser | ? | 4 |
| | Functional Materials II | Mücklich | FuWV | 4 |
| Internship (Industry) | Motz, Marx | FPI | 6 | |
| Seminar Material Engineering | All Professors | SMWS | 2 - 4 | |
| Semester 3 | Nonferrous Metals I | Busch | NEM1 | 3 |
| | Intermetallic Compounds | Busch | IPhas | 3 |
| | Lightweight Systems 1 | Herrmann | ? | 3 |
| | Surface Engineering | Busch | OTech | 3 |
| | Heavy Plate Production and Processing | Kalla | ? | 3 |
| | Non-Destructive Testing of Materials II | Boller | Zfp2 | 3 |
| | Methodology 4: High Resolution Microscopy II (TEM, SPM) | Motz | HMV2 | 3 |
| | 3D Analysis of Micro and Nanostructures - Basics | Mücklich | 3DMN1 | 3 |
| | Structural Durability | Boller | | 3 |
| | Corrosion and High Temperature Behavior | Busch | KorHT | 3 |
| | Laboratory Materials Science | Motz, Marx | PrMW | 4 |
| | Fracture Mechanics | Motz | Bruch | 4 |
| | Physical Acoustics 2 | Rabe | ? | 4 |
| | Diffraction Methods | Mücklich | BEUG | 5 |
| | Methodology 2: Basics of Microscopy and Spectroscopy | Motz | TeG | 5 |
| Theoretical Material Physics | Müser | ? | ? | |
| Computer Simulation in Material Physics | Müser | ? | ? | |
| Internship (Industry) | Motz, Marx | FPI | 6 | |
| Seminar Material Science | All Professors | SMWW | 2 - 4 | |
| UPC | | | | |
| | Course | Responsible | Code | ECTS |
| Semester 2 | Metals and Alloys | Calvo | | 5 |
| | Corrosion and Degradation of Materials | Iribarren & Fernandez | | 5 |
| | Fracture and Fatigue | Anglada | | 5 |
| | New perspectives in Materials Science | Llanes | | 5 |
| | Development of Competences for the Search and Publication of Information in Materials Science | Library staff | | 2 |
| | Materials Selection in Mechanical Design | Cabrera | | 5 |
| | Internship (Industry) | All Professors | | 5 |
| | Metals Technology | Prado | | 5 |
| Semester 3 | Light Alloys | Calvo | | 5 |
| | Failure Analysis and Quality Control in Materials Technology | Mateo | | 5 |
| | Materials Joining Technologies | Mateo | | 5 |
| | Surface Technology | | | 5 |
| | Nanotechnology | Cabreera | | 5 |
| | Modelling of Plastic Deformation of Metals | Riera | | 5 |
| | Internship (Industry) | All Professors | | 5 |
| Tutorised Research Work | All Professors | | 5 | |

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| LTU | | | | |
|------------|--|----------------------|--------|------|
| | Course | Responsible | Code | ECTS |
| Semester 2 | Phase Transformations (semester 1) | Akthar | T7008T | 7,5 |
| | Advanced Materials Characterization Techniques | Akthar | T7003T | 7,5 |
| | Select 2 of the following (italic): | | | |
| | <i>Materials Modelling</i> | Joffe | T7002T | 7,5 |
| | <i>Surface Engineering</i> | Vuorinen | T7004T | 7,5 |
| | <i>Nanomaterials</i> | Soldatov | T7006T | 7,5 |
| | <i>Materials Selection and Ecodesign</i> | Vuorinen | T0007T | 7,5 |
| Semester 3 | Advanced Metallic Materials - Project Work | All Professors | T0009T | 27 |
| UL | | | | |
| | Course | Responsible | Code | ECTS |
| Semester 2 | Inorganic Materials Phase Transformation | Redjaimia | | 5 |
| | Solid State Diffusion | Redjaimia | | 4 |
| | Materials Mechanics II: Plasticity | Ayadi | | 4 |
| | Materials Degradation | Jonquières/Mat hieu | | 3 |
| | Bibliographic Project | Horwat | | 3 |
| | Materials Characterization | Redjaimia | | 1,5 |
| | Granular Solids and Porous Media | Barth | | 3 |
| | Measurements and Data Interpretation | Besson | | 2 |
| | Materials Selection | Redjaimia | | 1 |
| Semester 3 | Plastic Deformation and Microstructures | Jacques | | 3 |
| | Microstructure Formation | Gautier/Bauer Grosse | | 3 |
| | Elaboration Processes | Patisson | | 3 |
| | Characterisation Methods | Dehmas | | 3 |
| | Stress Microstructure Relationship | Denis | | 3 |
| | Advanced Metallic Materials - Project Work | Horwat | | 15 |

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Track 2: Polymers and Composites - Modelling, processing & tailored properties

| UdS | | | | |
|---|---|--------------------|---------------|--------------|
| | Course | Responsible | Code | ECTS |
| Semester 2 | Experimental Characterization of Polymer Materials | Possart | ECPol | 3 |
| | Adhesives and Adhesive Bonding Technology | Possart | Kleb | 3 |
| | Organic Layers - Preparation and Characterization | Possart | OSHC | 3 |
| | Polymeric Composit Materials | Katrakova | PolVer | 3 |
| | Refractory Materials | Falk | FeWe | 3 |
| | Lightweight Systems 2 | Herrmann | ? | 3 |
| | 3D Analysis of Micro and Nanostructures - Advanced Methods | Mücklich | 3DMN2 | 3 |
| | Numerical Mechanics | Diebels | NuMech | 4 |
| | Physical Acoustics 1 | Rabe | ? | 4 |
| | Material Modelling | Diebels | MaMo | 4 |
| | Empirical and Statistical Modelling | Bähre | EsMod | 4 |
| | Finite Elements in Continuum Mechanics | Diebels | FEMM | 4 |
| | Internship (Industry) | Motz, Marx | FPI | 6 |
| | Seminar Material Engineering | All Professors | SMWS | 2 - 4 |
| Semester 3 | Synthesis of Polymers | Wenz | MC01 | 2 |
| | Non-Destructive Testing of Materials II | Boller | ZFP2 | 3 |
| | Functional Coatings | Kraus | GuKBe | 3 |
| | Methodology 4: High Resolution Microscopy II (TEM, SPM) | Motz | HMV2 | 3 |
| | High-Performance Ceramics | Falk | HLKer | 3 |
| | Rubber Technologies | Katrakova | Kautech | 3 |
| | Lightweight Systems 1 | Herrmann | ? | 3 |
| | Ceramic Composites | Falk | KeKo | 3 |
| | Polymer - Solid Interphases | Possart | PFInt | 3 |
| | 3D Analysis of Micro and Nanostructures - Basics | Mücklich | 3DMN1 | 3 |
| | NanoBioMaterials 1 | Arzt | NBM-1 | 3 |
| | Corrosion and High Temperature Behavior | Busch | KorHT | 3 |
| | Experimental Mechanics | Diebels | ExMech | 4 |
| | Continuum Mechanics | Diebels | KonM | 4 |
| | Physical Acoustics 2 | Rabe | ? | 4 |
| | Thermodynamics of Heterogeneous Materials | Possart | ThS | 5 |
| | Theoretical Material Physics | Müser | ? | ? |
| | Computer Simulation in Material Physics | Müser | ? | ? |
| Laboratory Materials Science | Motz, Marx | PrMW | 4 | |
| Internship (Industry) | Motz, Marx | FPI | 6 | |
| Seminar Material Science | All Professors | SMWW | 2 - 4 | |
| UPC | | | | |
| | Course | Responsible | Code | ECTS |
| Semester 2 | Natural Materials and Biomaterials | Ginebra | | 5 |
| | New perspectives in Materials Science | Llanes | | 5 |
| | Plastics Materials: Characterization and Applications | Santana | | 5 |
| | Technological Biopolymers | Munoz | | 5 |
| | Technology of Plastic | Martinez | | 5 |
| | Internship (Industry) | All Professors | | 5 |
| | Development of Competences for the Search and Publication of Information in Materials Science | Library staff | | 2 |
| Semester 3 | Advanced Ceramics and Inorganic Composite Materials | Anglada | | 5 |
| | Composite Materials | Pagés | | 5 |
| | Design, Ecodesign and Polymers Recycling | Maspoch | | 5 |
| | Life Tissues, Substitutive Materials and Biointerfaces | Engel | | 5 |
| | Polymers and Composites | Martinez | | 5 |
| | Internship (Industry) | All Professors | | 5 |
| | Tutorised Research Work | All Professors | | 5 |
| LTU | | | | |
| | Course | Responsible | Code | ECTS |
| Semester 2 | Composites | Varna | T7012T | 7,5 |
| | Aerospace Materials | Varna | T7005T | 7,5 |
| | Advanced Materials Characterization Techniques | Akthar | T7003T | 7,5 |
| | Select 1 of the following (italic): | | | |
| | <i>Phase Transformations (semester 1)</i> | <i>Akthar</i> | <i>T7008T</i> | <i>7,5</i> |
| | <i>Laser Material Processing (semester 1)</i> | <i>Kaplan</i> | <i>T0018T</i> | <i>7,5</i> |
| <i>Materials Mechanics (semester 1)</i> | <i>Lindgren</i> | <i>T7016T</i> | <i>7,5</i> | |
| Semester 3 | Polymers and composites - Project Work | All Professors | T7009T | 27 |

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| UL | | | | |
|---------------|---|----------------------|------|------|
| | Course | Responsible | Code | ECTS |
| Semester 2 | Polymer Physics | Etienne | | 5 |
| | Composite Materials with Polymeric Matrix | Etienne | | 1,5 |
| | Mechanical Behaviour of Composite Materials | Meshaka | | 3 |
| | Process Engineering | Simmonot | | 3 |
| | Laboratory: Polymers | Etienne | | 2 |
| | Separation Engineering | Barth | | 2 |
| | Materials Mechanics II: Plasticity | Ayadi | | 4 |
| | Bibliographic Project | Horwat | | 3 |
| | Formulation of Polymer Blends | Six | | 0,5 |
| | Medical Applications of Polymers | Six | | 0,5 |
| | Functional Polymers | Etienne | | 1 |
| | Biopolymers and Degradable Polymers | Jonquieres | | 0,5 |
| | Semester 3 | Not Available | | |

Comment: only one internship can be done during semester 2 or semester 3.

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Track 3: High Performing Surfaces - Coating, structuring & functionalization

| UdS | | | | |
|---|---|----------------------|--------------|--------------|
| | Course | Responsible | Code | ECTS |
| Semester 2 | Nonferrous Metals II | Busch | NEM2 | 3 |
| | Precision Machining Technologies | Bähre | FBTec | 3 |
| | Organic Layers - Preparation and Characterization | Possart | OSHC | 3 |
| | Adhesives and Adhesive Bonding Technology | Possart | Kleb | 3 |
| | NanoBioMaterials 2 | Arzt | NBM-2 | 3 |
| | Finite Elements in Continuum Mechanics | Diebels | FEMM | 4 |
| | Functional Materials II | Mücklich | FuWV | 4 |
| | Computer Simulation in Materials Physics | Müser | ? | 4 |
| | Numerical Mechanics | Diebels | NuMech | 4 |
| | Laser Treatment of Materials - Applications | Mücklich | Las2 | 4 |
| | Methodology 3: High Resolution Microscopy I (SEM, EDS) | Motz | HMV1 | 4 |
| | Material Modelling | Diebels | MaMo | 4 |
| | Internship (Industry) | Motz, Marx | FPI | 6 |
| | Seminar Material | All Professors | SMWS | 2 - 4 |
| Semester 3 | Non-Destructive Testing of Materials II | Boller | ZFP2 | 3 |
| | High-Performance Ceramics | Falk | HLKer | 3 |
| | Intermetallic Compounds | Busch | IPhas | 3 |
| | Surface Engineering | Busch | OTech | 3 |
| | Laser Treatment of Materials - Interaction with Matter | Mücklich | Las1 | 3 |
| | 3D Analysis of Micro and Nanostructures - Basics | Mücklich | 3DMN1 | 3 |
| | Functional Coatings | Kraus | GuKBe | 3 |
| | Polymer - Solid Interphases | Possart | PFInt | 3 |
| | NanoBioMaterials 1 | Arzt | NBM-1 | 3 |
| | Methodology 4: High Resolution Microscopy II (TEM, SPM) | Motz | HMV2 | 3 |
| | Theoretical Material Physics | Müser | ? | ? |
| | Computer Simulation in Material Physics | Müser | ? | ? |
| | Laboratory Materials Science | Motz, Marx | PrMW | 4 |
| | Internship (Industry) | Motz, Marx | FPI | 6 |
| Seminar Material Science Seminar | All Professors | SMWW | 2 - 4 | |
| UPC | | | | |
| Semester 2 | Course | Responsible | Code | ECTS |
| | Not Available | | | |
| Semester 3 | Not Available | | | |
| LTU | | | | |
| Semester 2 | Course | Responsible | Code | ECTS |
| | Surface Engineering | Vuorinen | T7004T | 7,5 |
| | Advanced Materials Characterization Techniques | Akthar | T7003T | 7,5 |
| | Select 1 of the following (italic): | | | |
| | <i>Phase Transformations (semester 1)</i> | Akthar | T7008T | 7,5 |
| | <i>Materials Mechanics (semester 1)</i> | Lindgren | T7016T | 7,5 |
| | Select 1 of the following (italic): | | | |
| <i>Nanomaterials</i> | Soldatov | T7006T | 7,5 | |
| <i>Materials Modeling</i> | Joffe | T7002T | 7,5 | |
| <i>Material Selection and Ecodesign</i> | Vuorinen | T0007T | 7,5 | |
| Semester 3 | High performing Surfaces - Project Work | All Professors | T7009T | 27 |
| UL | | | | |
| Semester 2 | Course | Responsible | Code | ECTS |
| | Not Available | | | |
| Semester 3 | Plastic Deformation and Microstructures | Jacques | | 3 |
| | Microstructure Formation | Gautier/Bauer-Grosse | | 3 |
| | Elaboration Processes | Patisson | | 3 |
| | Surface Treatment I: Introduction | Capon | | 3 |
| | Surface Treatment II | Horwat | | 3 |
| High Performing Surfaces - Project Work | Horwat | | 15 | |

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Track 4: Materials Engineering and Manufacturing Technologies

| UdS | | | | |
|------------------------------|---|--------------------|---------------|--------------|
| | Course | Responsible | Code | ECTS |
| Semester 2 | Powder Metallurgy | Busch | PuMet | 3 |
| | Lightweight Systems 2 | Herrmann | ? | 3 |
| | Production Engineering | Bähre | ProdSys | 3 |
| | Amorphous Metals | Busch | AmoMet | 3 |
| | Precision Machining Technologies | Bähre | FBTec | 3 |
| | Structural Health Monitoring | Boller | ? | 3 |
| | Nonferrous Metals II | Busch | NEM2 | 3 |
| | Steel II | Busch | Stahl | 3 |
| | 3D Analysis of Micro and Nanostructures - Basics | Mücklich | 3DMN1 | 3 |
| | Computer Simulation in Materials Physics | Müser | ? | 4 |
| | Physical Acoustics 1 | Rabe | ? | 4 |
| | Methodology 3: High Resolution Microscopy I (SEM, EDS) | Motz | HMV1 | 4 |
| | Machine Dynamics | Diebels | ? | 4 |
| | Fluid Mechanics | Roland | Ström | 4 |
| | Laser Treatment of Materials - Applications | Mücklich | Las2 | 4 |
| | Finite Elements in Continuum Mechanics | Diebels | FEMM | 4 |
| | Internship (Industry) | Motz, Marx | FPI | 6 |
| Seminar Material Engineering | All Professors | SMWS | 2 - 4 | |
| Semester 3 | Functional Coatings | Kraus | GuKBe | 3 |
| | Welding Technology | Kalla | ? | 3 |
| | Powder Technology | Falk | PuVerf | 3 |
| | Non-Destructive Testing of Materials II | Boller | ZfP2 | 3 |
| | Surface Engineering | Busch | OTech | 3 |
| | Machining Technologies | Bähre | Spanf | 3 |
| | Shaping Processes | Bähre | URUmV | 3 |
| | Heavy Plate Production and Processing | Kalla | ? | 3 |
| | Lightweight Systems 1 | Herrmann | ? | 3 |
| | Laser Treatment of Materials - Interaction with Matter | Mücklich | Las1 | 3 |
| | Structural Durability | Boller | | 3 |
| | Corrosion and High Temperature Behavior | Busch | KorHT | 3 |
| | Theoretical Material Physics | Müser | ? | ? |
| | Computer Simulation in Material Physics | Müser | ? | ? |
| | Laboratory Materials Science | Motz, Marx | PrMW | 4 |
| | Internship (Industry) | Motz, Marx | FPI | 6 |
| | Seminar Material Science | All Professors | SMWW | 2 - 4 |
| UPC | | | | |
| Semester 2 | Course | Responsible | Code | ECTS |
| | Not Available | | | |
| Semester 3 | Not Available | | | |
| LTU | | | | |
| Semester 2 | Course | Responsible | Code | ECTS |
| | Laser Material Processing (semester 1) | Kaplan | T0018T | 7,5 |
| | Advanced Materials Characterization Techniques | Antti | T7003T | 7,5 |
| | Advanced Processing and Cyberlab | Kaplan | T7015T | 7,5 |
| | Select 1 of the following (italic): | | | |
| | <i>Surface Engineering</i> | <i>Vuorinen</i> | <i>T7004T</i> | <i>7,5</i> |
| | <i>Nanomaterials</i> | <i>Soldatov</i> | <i>T7006T</i> | <i>7,5</i> |
| <i>Materials Modeling</i> | <i>Joffe</i> | <i>T7002T</i> | <i>7,5</i> | |
| <i>Biocomposites</i> | <i>Aitomäki</i> | <i>T7017T</i> | <i>7,5</i> | |
| Semester 3 | Materials Engineering and Manufacturing Technologies - Project Work | All Professors | T7009T | 27 |

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| UL | | | | |
|---------------|---|-----------------|------|------|
| | Course | Responsible | Code | ECTS |
| Semester 2 | Inorganic Materials Phase Transformation | Redjaimia | | 5 |
| | Surface Treatment II | Horwat | | 3 |
| | Ecodesign | Simmonot | | 2 |
| | Materials Mechanics II: Plasticity | Ayadi | | 4 |
| | Process Engineering | Simmonot | | 3 |
| | Separation Engineering | Barth | | 2 |
| | Materials Mechanics III: Processing and Forming | Ayadi | | 2 |
| | Granular Solids and Porous Media | Barth | | 3 |
| | Waste and Effluent Recycling | Pineau/Simmonot | | 2 |
| Semester 3 | Not Available | | | |

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Track 5: Bio/Nanomaterials (including special applications)

| UdS | | | | |
|------------------------------|---|--------------------|---------------|--------------|
| | Course | Responsible | Code | ECTS |
| Semester 2 | Organic Layers - Preparation and Characterization | Possart | OSHC | 3 |
| | Methodology 6: Microstructural Mechanics and DamageMechanisms | Motz, Marx | MSMSM | 3 |
| | Nanostructural Physics 2 | Hartmann | | 3 |
| | Kinetics of Phase Transformation | Busch | Kin | 3 |
| | 3D Analysis of Micro and Nanostructures - Advanced Methods | Mücklich | 3DMN2 | 3 |
| | NanoBioMaterials 2 | Arzt | NBM-2 | 3 |
| | Methodology 7: Nano- and micromechanical testing methods | Motz | NMMMM | 3 |
| | Material Modelling | Diebels | MaMo | 4 |
| | Computer Simulation in Materials Physics | Müser | ? | 4 |
| | Methodology 3: High Resolution Microscopy I (SEM, EDS) | Motz | HMV1 | 4 |
| | Laser Treatment of Materials - Applications | Mücklich | Las2 | 4 |
| | Functional Materials II | Mücklich | FuWV | 4 |
| | Internship (Industry) | Motz, Marx | FPI | 6 |
| | Seminar Material Engineering | All Professors | SMWS | 2 - 4 |
| Semester 3 | Functional Coatings | Kraus | GuKBe | 3 |
| | 3D Analysis of Micro and Nanostructures - Basics | Mücklich | 3DMN1 | 3 |
| | NanoBioMaterials 1 | Arzt | NBM-1 | 3 |
| | Powder Technology | Falk | PuVerf | 3 |
| | High-Performance Ceramics | Falk | HLKer | 3 |
| | Non-Destructive Testing of Materials II | Boller | ZfP2 | 3 |
| | Laser Treatment of Materials - Interaction with Matter | Mücklich | Las1 | 3 |
| | Methodology 4: High Resolution Microscopy II (TEM, SPM) | Motz | HMV2 | 3 |
| | Surface Engineering | Busch | OTech | 3 |
| | Laboratory NanoBioMaterials | Arzt | NBM-P | 4 |
| | Continuum Mechanics | Diebels | KonM | 4 |
| | Material Modelling | Diebels | MaMo | 4 |
| | Thermodynamics of Heterogeneous Materials | Possart | ThS | 5 |
| | Methodology 2: Basics of Microscopy and Spectroscopy | Motz | TeG | 5 |
| | Theoretical Material Physics | Müser | ? | ? |
| | Computer Simulation in Material Physics | Müser | ? | ? |
| Laboratory Materials Science | Motz, Marx | PrMW | 4 | |
| Internship (Industry) | Motz, Marx | FPI | 6 | |
| Seminar Material Science | All Professors | SMWW | 2 - 4 | |
| UPC | | | | |
| Semester 2 | Not Available | | | |
| Semester 3 | Biomedical Materials | | | 4,5 |
| | Surface Engineering | | | 3 |
| | Design, Ecodesign and Recycling | Maspoch | | 4,5 |
| | Life Tissues,Substitutive Materials and Biointerfaces | Engel | | 5 |
| | Nanotechnology | Cabrera | | 5 |
| | Bioceramics | Ginebra | | 5 |
| | Advanced Ceramics and Inorganic Composite Materials | Anglada | | 5 |
| | Internship (Industry) | All Professors | | 5 |
| Tutorised Research Work | All Professors | | 5 | |
| LTU | | | | |
| | Course | Responsible | Code | ECTS |
| | Biocomposites | Aitomäki | T7017T | 7,5 |
| | Nanomaterials | Soldatov | T7006T | 7,5 |
| | Advanced Materials Characterization Techniques | Akthar | T7003T | 7,5 |
| | Select 1 of the following (italic): | | | |
| | <i>Phase Transformations (semester 1)</i> | <i>Akthar</i> | <i>T7008T</i> | <i>7,5</i> |
| | <i>Laser Material Processing (semester 1)</i> | <i>Kaplan</i> | <i>T0018T</i> | <i>7,5</i> |
| | <i>Materials Mechanics (semester 1)</i> | <i>Lindgren</i> | <i>T7016T</i> | <i>7,5</i> |
| Semester 3 | Bio/Nanomaterials (including Special Applications) - Project Work | All Professors | T7009T | 27 |
| UL | | | | |
| Semester 2 | Not Available | | | |
| Semester 3 | Not Available | | | |

Comment: only one internship can be done during semester 2 or semester 3.