

Module plan Bachelor: Materials Science and Bionics

Semester 7	Bachelor's Thesis	10 CP	Mandatory elective modules 5 • Lightweight-Construction and Bionics • Photonics and Bionics • Bioinspired Materials and Polymers	5 CP	Mandatory elective modules 6 • Lightweight-Construction and Bionics • Photonics and Bionics • Bioinspired Materials and Polymers	5 CP	Micro- and Nanotechnology	5 CP	Project Management and Basics of Business	5 CP		
	Project	10 CP	Mandatory elective modules 3 • Lightweight-Construction and Bionics • Photonics and Bionics • Bioinspired Materials and Polymers	5 CP	Mandatory elective modules 4 • Lightweight-Construction and Bionics • Photonics and Bionics • Bioinspired Materials and Polymers	5 CP	Quantum Mechanics and Numerical Physics	5 CP	Self-Management and Communication	5 CP		
Semester 5	Internship Semester and Exchange Semester										30 CP	
Semester 4	Mathematics III	5 CP	Biomechanics	5 CP	Mandatory elective modules 1 • Lightweight Construction and Bionics • Photonics and Bionics • Bioinspired Materials and Polymers	5 CP	Mandatory elective modules 2 • Lightweight Construction and Bionics • Photonics and Bionics • Bioinspired Materials and Polymers	5 CP	Technical Optics II	5 CP	Math. Methods of Measurement Technology	5 CP
	Organic Chemistry	5 CP	Bionics	5 CP	Orientation Module	5 CP	Production Technology	5 CP	Technical Optics I	5 CP	Lighting Technology	5 CP
Semester 3	Mathematics II	5 CP	Biology and Basic Bionics	5 CP	Materials Characterization	5 CP	Technical Basics	5 CP	Technical Mechanics II and CAD	5 CP	Higher Physics and Electrical Engineering	5 CP
Semester 2	Mathematics I	5 CP	General and Inorganic Chemistry	5 CP	Fundamentals of Physics a. Instrumental Analysis	5 CP	Materials Science	5 CP	Technical Mechanics I	5 CP	English for Engineers	5 CP
Semester 1												

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3 Mandatory elective profiles

Semester	Lightweight-Construction and Bionics	Photonics and Bionics	Bioinspired Materials and Polymers
4. Sem.	Biomaterials and Biomineralization	Lighting Systems and Photonics	Biomaterials and Biomineralization
	Material and Component Testing	Biological Aspects of Lighting	Macromolecular Chemistry and Plastics Technology
6. Sem.	Fabrication of Lightweight Structures	Photonic Materials	Polymer Design
	Bioplastics	Bionics and Optical Design	Bioplastics
7. Sem.	Modeling and Simulation	Biomimetic Materials and Processes	Biomimetic Materials and Processes
	Quality Management and Environmental Technology	Technical and Biomimetic Micro-/Nanooptics	Quality and Data Management