Course of Study Engineering Science (Study Cohort w20)

Sample course plan - Bachelor Engineering Science (ESBS)
Specialisation: Electrical Engineering

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

Semester 1 (FormHrs/wk)

Chemistry (GES)
Course	Form	Hrs/wk
Chemistry I+II	VL	4
Chemistry I+II	HÜ	2

Linear Algebra
Course	Form	Hrs/wk
Linear Algebra	VL	4
Linear Algebra	HÜ	2
Linear Algebra	GÜ	2

Electrical Engineering I (GES)
Course	Form	Hrs/wk
Electrical Engineering I	VL	3
Electrical Engineering I	GÜ	2

Engineering Mechanics I (GES)
Course	Form	Hrs/wk
Mechanics I	VL	2
Mechanics I	HÜ	3

Physics for Engineers (GES)
Course	Form	Hrs/wk
Physics for Engineers	VL	2
Physics for Engineers	GÜ	1

GES 101
Course	Form	Hrs/wk
GES 101	SE	2

Semester 2 (FormHrs/wk)

Mathematical Analysis
Course	Form	Hrs/wk
Mathematical Analysis	VL	4
Mathematical Analysis	HÜ	2
Mathematical Analysis	GÜ	2

Electrical Engineering II (GES)
Course	Form	Hrs/wk
Electrical Engineering II	VL	3
Electrical Engineering II	GÜ	2

Engineering Mechanics II (GES)
Course	Form	Hrs/wk
Mechanics II	VL	2
Mechanics II	HÜ	2

Fundamentals of Mechanical Engineering Design (GES)
Course	Form	Hrs/wk
Fundamentals of Mechanical Engineering	VL	2
Fundamentals of Mechanical Engineering	GÜ	2

Technical Thermodynamics I (GES)
Course	Form	Hrs/wk
*** Technical Thermodynamics I	IV	3
*** Technical Thermodynamics I	GÜ	1

Semester 3 (FormHrs/wk)

Mechanical Engineering: Design (part 1)
Course	Form	Hrs/wk
Embodiment Design and 3D-CAD	VL	2
Mechanical Design Project I	PBL	3

Engineering Mechanics III (EN)
Course	Form	Hrs/wk
Mechanics III	HÜ	1
Mechanics III	GÜ	2
Mechanics III	VL	3

Fundamentals of Materials Science (EN) (part 1)
Course	Form	Hrs/wk
Fundamentals of Materials Science I	VL	2
Physical and Chemical Basics of Materials Science	VL	2

Computer Science for Engineers (EN)
Course	Form	Hrs/wk
**** Computer Science for Engineers	VL	0
**** Computer Science for Engineers	GÜ	3

Mathematics III (EN)
Course	Form	Hrs/wk
Analysis III	VL	2
Analysis III	HÜ	1
Analysis III	GÜ	1
Differential Equations 1	VL	2
Differential Equations 1	HÜ	1
Differential Equations 1	GÜ	1

Semester 4 (FormHrs/wk)

Mechanical Engineering: Design (part 2)
Course	Form	Hrs/wk
Team Project Design Methodology	PBL	2
Mechanical Design Project II	PBL	3

Fundamentals of Materials Science (EN) (part 2)
Course	Form	Hrs/wk
Fundamentals of Materials Science II	VL	2

Electromagnetics for Engineers I: Time-Independent Fields
Course	Form	Hrs/wk
Electromagnetics for Engineers I: Time-Independent Fields	VL	3
Electromagnetics for Engineers I: Time-Independent Fields	GÜ	2

Computational Mechanics (EN)
Course	Form	Hrs/wk
Computational Mechanics	IV	4
Computational Mechanics	GÜ	2

Signals and Systems (EN)
Course	Form	Hrs/wk
Signals and Systems	GÜ	2
Signals and Systems	VL	3

Semester 5 (FormHrs/wk)

Numerical Mathematics I
Course	Form	Hrs/wk
Numerical Mathematics I	VL	2
Numerical Mathematics I	GÜ	2

Fluid Mechanics (EN)
Course	Form	Hrs/wk
*** Fluid Mechanics	VL	3
*** Fluid Mechanics	HÜ	2

Introduction to Control Systems (EN)
Course	Form	Hrs/wk
Introduction to Control Systems	GÜ	2
**** Introduction to Control Systems	VL	2

Electronic Devices
Course	Form	Hrs/wk
Electronic Devices	VL	3
Electronic Devices	PBL	2

Electromagnetics for Engineers II: Time-Dependent Fields
Course	Form	Hrs/wk
Electromagnetics for Engineers II: Time-Dependent Fields	VL	3
Electromagnetics for Engineers II: Time-Dependent Fields	GÜ	2

Semester 6 (FormHrs/wk)

Fundamentals of Production and Quality Management
Course	Form	Hrs/wk
Production Process Organization	VL	2
Quality Management	VL	2

Modeling, Simulation and Optimization (EN)
Course	Form	Hrs/wk
Modeling, Simulation and Optimization	IV	4

Foundations of Management (EN)
Course	Form	Hrs/wk
*** Introduction to Management	VL	3
*** Introduction to Management	GÜ	3

Semiconductor Circuit Design
Course	Form	Hrs/wk
Semiconductor Circuit Design	VL	3
Semiconductor Circuit Design	GÜ	1

Mathematics IV (EN)
Course	Form	Hrs/wk
Differential Equations 2	VL	2
Differential Equations 2	HÜ	1
Differential Equations 2	GÜ	1
Complex Functions	VL	2
Complex Functions	HÜ	1
Complex Functions	GÜ	1

Semester 7 (FormHrs/wk)

Advanced Internship AIW/ ES
Course	Form	Hrs/wk
Advanced Internship AIW/ ES: Preparation	SE	1
Advanced Intship AIW/ ES: Internship-accompanying Seminar	SE	1

Bachelor Thesis

Non-technical Courses for Bachelors (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.