

Module Handbook

B.Eng. ENGINEERING AND MANAGEMENT (SPO WS 26/27)

Faculty of Engineering and Management

Study and examination regulation WS 26/27

as of: 2026-07-31

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1 Overview

Name of the program	Engineering and Management
Study type & degree	Bachelor of Engineering (full time)
First start date	WS 26/27; Start only in winter semester
Standard period of study	7 Semesters (210 ECTS, 148 SWS)
Study location	THI-Campus in Ingolstadt
Language of instruction	English
Cooperation	None
Admission requirement	University entrance qualification
Capacity	55 students p.a.
Program director	Prof. Dr. Andrea Eisenberg Tel.: +49 841 9348-3525 Room: N112 E-Mail: Andrea.Eisenberg@thi.de

2 Introduction

The text describes the current state of the program modules in the bachelor's degree "Engineering and Management" according to its Study and Examination Regulation (German: SPO "Studien- und Prüfungsordnung") of 24.11.2014 as revised on 23.03.2026.

The course description (German: "Modulhandbuch") provides the objectives and content of the individual compulsory modules and a breakdown of SWS (semester hours per week) per module and semester.

2.1 Objectives

The Bachelor of Engineering program "Engineering and Management" of Technische Hochschule Ingolstadt addresses students who intend to work for international companies in functions that require both, an engineering background as well as a thorough understanding of management practices.

The objective of the bachelor's degree "Engineering and Management" is to teach the expertise, methodological competence and social skills that enable students to independently apply scientific findings and methods and to act responsibly in the workplace and society in the occupational field of industrial engineering. Graduates are to be qualified to take on tasks in international enterprises and/or cross-border tasks.

2.2 Admission requirements

The student's eligibility for the Bachelor's degree "Engineering and Management" is demonstrated by evidence of the general conditions according to the Ordinance on the Eligibility for Studying at the Universities of the Free State of Bavaria and the State-Recognized Non-State Universities (Eligibility Ordinance - QualV) of November 2, 2007 (Law and Order Gazette 2007, p. 767, Bavarian Collection of Laws 2210-1-1-3-UK/-WFK) in its current version.

In addition, for international students, proof of English B2 is required.

The binding regulations for this curriculum can be found in:

- Study and Examination Regulations (SPO) for the Bachelor's degree program "Engineering and Management" (B. Eng.) as of 24.11.2014 as revised on 23.03.2026.
- General Examination Regulation (German: APO „Allgemeine Prüfungsordnung“) of Technische Hochschule Ingolstadt.
- Enrollment Statute (German: „Immatrikulationssatzung“) of Technische Hochschule Ingolstadt.

The sequence of studies is influenced by the regulations of the Study and Examination Regulations (German: SPO "Studien- und Prüfungsordnung").

2.3 Target group

The program addresses prospective students,

- who would like to work as engineers at the interface between technology and business administration.
- who are enthusiastic about the development, production, purchasing and sales of products and services.
- with interest in interdisciplinary studies at the interface of technology, economy and sociology with a strong focus on the current state of foresight research and challenges of the future.
- that prefer a master's program fully taught in English, like to gain intercultural experience and go for an international career at home and abroad.

2.4 Structure of the program

The standard period of study is seven semesters. The course is divided into two study sections. The first part of the course comprises two theoretical semesters. The second part of the program comprises four theoretical and one practical semester, which is the fifth semester.

The practical training or preliminary work according to §9 of the THI enrollment statute is required.

The following figure shows the curriculum.

1. Semester		
Mathematics 1	Computer Science	Economics
Business Administration	Start-Up Project	Foreign Language 1
2. Semester		
Mathematics 2	Mechanical Design	Physics
Manufacturing Technologies	Financial Accounting	Foreign Language 2
3. Semester		
Software Development	Electrical Engineering	Engineering Mechanics
Automation Technologies	Cost Accounting	Foreign Language 3
4. Semester		
Materials Science	Production Systems	Project and Quality Management
Marketing	Controlling	Selected Topics in International Management
5. Semester		
Industry Internship	Seminar	Elective
6. Semester		
Statistics	Production Planning & Logistics	Project
Business Information Systems	Selected Topics of International & Strategic Management	Intercultural Studies
7. Semester		
Introduction to AI	Bachelor's Thesis	Seminar
Elective	Elective	

2.5 Prerequisites for advancement

Only students who have earned at least 42 ECTS credit points from the modules in the first part of the course are entitled to enter the second part of the course.

Only students who have achieved a grade of "sufficient" or higher in all the examinations and essential assessments done during the course in the first part of the course and have earned at least 20 ECTS credit points from the compulsory modules in the second part of the course are entitled to enter the practical studies semester.

		Engineering and Management (SPO WS 26/27) (Module Handbook SPO WS 26/27, WS 2026/27)

2.6 Industry internship

The practical studies semester in the second part of the course lasts 20 weeks and is accompanied by classes.

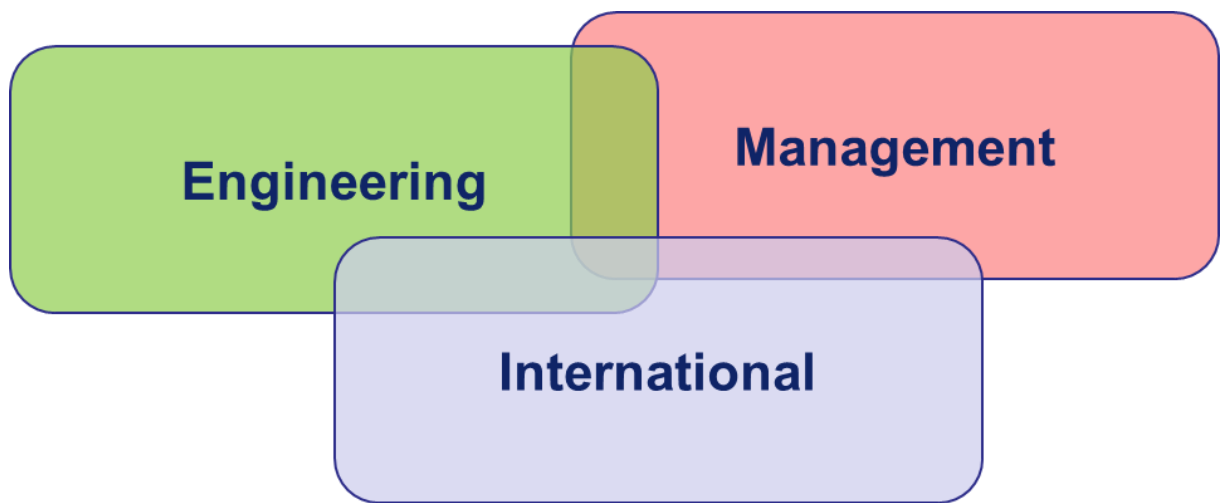
2.7 Concept

The program was established in the winter term 2015/16 and revised for the winter term 2026/27.

The concept was built on the already well-established German-speaking course “Wirtschaftsingenieurwesen”. In addition, international aspects were included.

3 Qualification profile

The program provides sound engineering education with modules such as engineering mechanics, material sciences, mechanical design, computer science, mathematics, software development and electrical engineering. Besides, the above-mentioned job requirements regarding management know-how are met by lectures such as accounting, marketing and controlling. In addition to those competencies, “soft skills” are trained, e.g., by team projects and student presentations.

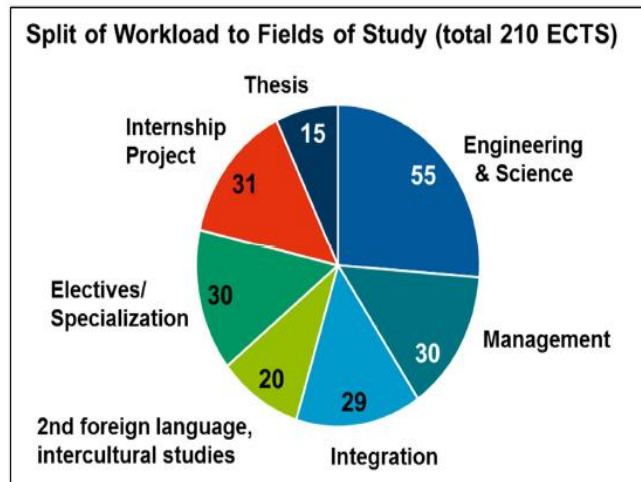


The studies also prepare students for international projects and positions. Specific modules such as “Intercultural studies”, “Selected topics in international management” and a second foreign language are part of the curriculum.

Students gain further international exposure by studying abroad at one of our partner universities. Internships, which are scheduled during the 5th semester, help to gain work experience as well as business contacts that may lead to future employment.

Last-but-not-least, lectures are taught in English - the language of international business. While attending lectures taught in the English language, students are encouraged to learn German as their second foreign language (courses scheduled during semesters 1, 2 and 3).

The total workload amounts to 210 ECTS. The curriculum consists of seven fields of study:



3.1 Mission statement

The program integrates the guiding principle of teaching in the following way:

We prepare our students for the challenges of the future:

- It is an interdisciplinary program, which enables students to develop future-oriented solutions for interdisciplinary challenges.
- It qualifies students to help shape social changes such as the digital transformation and technological change. It sensitizes students to the sustainable use of the environment and resources, to socially responsible behavior and to social commitment.
- Personal development and team skills at the interface between technology and business are actively challenged and promoted.

We enable our students to develop solutions to problems based on scientific knowledge:

- High share of engineering modules in the curriculum, especially in the first stage of study.
- Technical and methodological competence in both technical and management modules in both study parts.
- Team skills and social skills are developed at the interface between technology and management, through internships, project work, elective modules and general scientific modules.

We open outstanding regional and international perspectives for our students:

- The bachelor program is fully taught in English, addresses international students and creates intercultural competences.
- In this way, the program contributes to a cosmopolitan, international campus.
- Our numerous cooperations with companies in the region enable our students to start their careers in the best possible way, both regionally and internationally.

We help all students discover and realize their individual potential:

- the bachelor program is international and intercultural. Hence, the program promotes performance in appreciative cooperation. We meet each other with tolerance and openness and understand diversity as an opportunity to learn from each other and develop further.
- through individual dialogue with lecturers, consisting of professors from the TH Ingolstadt and selected lecturers from research and industry.

3.2 Study objectives

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

3.2.1 Subject-specific competencies

The students acquire in-depth knowledge in the areas of engineering and management.

The studies also prepare students for international projects and positions. Specific modules such as “Intercultural studies”, “Selected topics in international management” and a second foreign language are part of the curriculum.

3.2.2 Interdisciplinary competencies of the study program

Methodical competences:

The graduates are able:

- to work scientifically.
- to plan, compile and lead projects.
- to analyze interdisciplinary problems, to recognize comprehensive correlations, to transfer learned competences to new tasks and to evaluate the technical, economic and social impact of compiled solutions.

Social competences:

The graduates are able:

- to compile complex tasks in cross-functional and international teams, to solve conflicts in teams and to lead teams.
- to speak English fluently (incl. technical terms) and to react sensitively in intercultural affairs.
- to communicate their competences and to communicate generally.
- to convince and to become accepted.

Self-competences:

The graduates are able:

- to organize themselves and to manage their time.
- to have analytical and outcome-oriented intellectual power.
- to work target-oriented and autonomously.
- to present their results and themselves.

3.2.3 Examination concept of the program

The modules / examination subjects are specified in accordance with the curriculum including the type of examination and, in addition to written examinations, mainly consist of study work with colloquium, practical work, seminar work, project work, presentation, portfolio and oral examination. The technical and business modules of the first part of the course are usually examined in writing.

When developing the course, care was taken to ensure that a sensible mix of different types of exams is used. The triad of technology - business - interdisciplinary - also forms the framework for the exams.

Module	Form of examination
Mathematics 1	schrP
Computer Science	schrP
Physics	schrP
Business Administration	schrP
Start-up project	Proj
Foreign Language 1	LN
Mathematics 2	schrP
Mechanical Design	schrP
Manufacturing Technologies	schrP
Financial Accounting	schrP
Economics	schrP
Foreign Language 2	LN
Software Development	schrP
Engineering Mechanics	schrP
Materials Science	schrP
Cost Accounting	schrP
Automation Technologies	schrP
Foreign Language 3	LN
Electrical Engineering	schrP
Production Systems	schrP
Controlling	schrP
Marketing	schrP
Selected Topics of International management	mdIP
Production Planning & Logistics	schrP
Internship	PrB
Seminar	LN
Project- and Quality-Management	LN
Intercultural Studies	StA
Business Information Systems	schrP
Statistics	schrP
Introduction to AI	PF
Project	Proj
Selected Topics of Strategic and International Management	PF
Electives in Engineering and Management	3 LN
Bachelor Thesis Seminar	Koll
Bachelor Thesis	BA

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

3.2.4 Practical relevance of the program

All lecturers have a long-standing background in industry and / or an above-average academic qualification. The methods learned are used in projects in the following semesters. In addition, the practical semester, and a Bachelor thesis, usually written in cooperation with industry, ensure the application relevance.

3.2.5 Contribution of individual modules to the objectives of the program

Module	Professional competencies	Methodological competencies	Social competencies	Personal competencies
Mathematics 1	++	+	o	o
Computer Science	++	+	o	o
Mechanical Design	+	++	o	+
Business Administration	+	++	+	o
Start-up Project	+	+	++	++
Foreign Language 1	o	++	++	o
Mathematics 2	++	+	o	o
Physics	++	+	o	o
Materials Science	++	+	o	o
Financial Accounting	++	++	o	o
Production Systems	+	+	o	+
Foreign Language 2	o	++	++	o
Software Development	+	++	o	+
Engineering Mechanics	+	++	o	+
Cost Accounting	+	++	o	o
Automation Technologies	++	++	o	o
Foreign Language 3	o	++	++	o
Electrical Engineering	++	++	o	o
Economics	++	++	o	+
Manufacturing Technologies	++	++	o	o
Statistics	++	++	o	o
Introduction to AI	++	++	o	o
Selected Topics of Strategic and International Management	++	++	+	+

Module	Professional competencies	Methodological competencies	Social competencies	Personal competencies
Controlling	+	++	o	+
Marketing	+	+	++	++
Selected Topics of International Management	+	++	o	+
Production Planning & Logistics	+	++	+	+
Internship	+	+	++	++
Seminar	+	++	+	++
Project- and Quality-Management	+	++	+	o
Intercultural Studies	o	+	++	++
Business Information Systems	+	+	o	+
Project	+	+	++	++
Electives in Engineering and Management	++	++	++	++
Bachelor Thesis Seminar	+	++	o	++
Bachelor Thesis	+	++	++	++

3.3 Possible professional fields

The program is designed to allow graduates to succeed in inter-disciplinary jobs in an international environment. Graduates of this program are in great demand. There is a wide field of application in specialist or management roles in national or international companies and organizations.

Graduates are especially well prepared to take on specialist and management roles in the following areas:

- International Product Manager
- Cost Engineer
- Industrial Engineer, especially for companies with international production network
- Manager International Project
- Strategic Purchasing Manager
- Assistant to board member
- International Sales Manager, esp. for high-tech products
- Management Consultant
- Team leads global functions, e.g., purchasing, IT, planning.

4 Dual studies

In cooperation with selected industry partners, the study program can also be completed in dual studies model. The dual study model is offered as a study program with in-depth practice, in which the regular study program is supplemented by intensive practical phases in a company. It is also offered as „Verbundstudium“ (combined dual study program), which combines university studies with a regular vocational training/apprenticeship.

In dual study model, academic and practical phases (especially during semester breaks and for the final thesis) regularly alternate during study. The lecture times in the dual study model correspond to the standard study and lecture times at the THI.

By having a significantly longer practical period, by benefitting from a linking of corporate topics with the contents of selected modules and by attending modules adapted specifically to the needs of dual study programs, students develop strong general practical competencies but also company-, domain- and sector-specific competencies. Additionally, to subject matter competencies also elements of personal development such as an assertive presence, presenting, working in teams and organizing work are trained and promoted in this study program. Thereby, graduates of this study program adapt more easily and fast to divisions, projects and processes of companies.

The curriculum of the two dual degree program models differs from the regular degree program concept in the following points:

- **Preliminary practice and practical semester in a cooperating company**

In both dual study models, the practical semester are carried out in the cooperating company.

- **Dual modules**

Separate FW subjects are regularly offered for dual students in the degree program. These courses are held at the university or a dual partner. Separate projects and separate practical seminars are also offered for dual students. Projects and practical seminars can be credited for competencies acquired outside of the university in the company as a place of learning. Where possible, individual courses are held by lecturers from cooperation companies.

- **Final thesis at the cooperation company**

In both dual study models, the final thesis is written at a cooperating company, usually on a practice-relevant topic related to the focus of study.

Organizationally, the two dual degree program models are characterized by the following components:

- **Introductory track**

As part of the obligatory introductory week at the beginning of the program, a separate event is offered for dual degree students.

- **Mentoring**

The central contact persons for dual students in the faculty are the respective program head of studies. They organize an annual mentoring meeting with the dual students of the respective study program.

- **Quality management**

In the evaluation and surveys at the THI on the quality assurance of dual study separate question blocks are included.

• „Forum dual “

Organized by the Career Service and Student Counseling (CSS), the “Forum Dual” takes place once a year. The “Forum dual” promotes the professional-organizational exchange between the dual cooperation partners and the faculty and serves to ensure the quality of the dual study programs. All cooperation partners in the dual study program as well as representatives and dual students of the faculty are invited to the meeting.

Formal-legal regulation for dual studies for all degree programs of the THI is regulated in the APO (see §§ 17, 18 und 21) and the enrollment statutes (see §§ 8b und 18).

According to the above description, the following modules are different for dual students:

- Start-Up Project (5 ECTS)
- Marketing (5 ECTS)
- Production Planning & Logistics (5 ECTS)
- Project- and Quality-Management (5 ECTS)
- Project (5 ECTS)
- Praxis-Reflexion für Dual-Studierende (FW) (2,5 ECTS)
- Strategic Management (FW) (5 ECTS)
- CAD/CAM für Zerspanung, 3D-Druck und Robotik (FW) (5 ECTS)
- Digital Factory Basics (FW) (5 ECTS)
- Qualitätssicherung (FW) (5 ECTS)
- Internship (24 ECTS)
- Bachelor Thesis Seminar (3 ECTS)
- Bachelor Thesis (12 ECTS)

More detailed description can be found in the corresponding module description.

5 Description of Modules

5.1 Compulsory Modules

Mathematics 1

Module abbreviation	MA1_EGM_E	Reg.-Nr.	1
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Schlickewei, Ulrich		
Lecturer(s)	Schlickewei, Ulrich		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 5 SWS		
Workload	Contact hours	58 h	
	Self-study	67 h	
	Total	125 h	
Subjects of the module	Mathematics 1		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture, students are able to - recognize which questions in engineering sciences can be tackled by mathematical methods and post such questions themselves. - understand the logical way of reasoning, distinguish between a premise, a consequence, and a rule, and, furthermore, build a line of argument within engineering applications. - recognize known types of problems both in familiar and in new contexts, can solve such problems using known methods. - understand the mathematical language used in the engineering literature and can describe in both oral and written form their own reasoning and solution approaches. - be confident in handling the introduced mathematical methods.			
Content			
- Complex numbers: basics, rules, applications - Sequences and series: basics, convergence, applications - Functions: basics, continuity, applications - Differentiation in R: basics, rules, applications - Integration in R: basics, methods of integration, applications - Ordinary differential equations: basics, solution methods, applications			

Literature

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Additional remarks

There will be voluntary intermediate tests. Students can earn bonus points equivalent to up to 10% of the final exam score.

Mathematics 2

Module abbreviation	MA2_EGM_E	Reg.-Nr.	2
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory subject	2
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Schlickewei, Ulrich		
Lecturer(s)	Schlickewei, Ulrich		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 5 SWS		
Workload	Contact hours	58 h	
	Self-study	67 h	
	Total	125 h	
Subjects of the module	Mathematics 2		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture students are able to - recognize which questions in engineering sciences can be tackled by mathematical methods and post such questions themselves. - understand the logical way of reasoning, distinguish between a premise, a consequence, and a rule, and, furthermore, can build a line of argument within engineering applications. - recognize known types of problems both in familiar and in new contexts, can solve such problems using known methods. - understand the mathematical language used in the engineering literature and can describe in both oral and written form their own reasoning and solution approaches. - be confident in handling the introduced mathematical methods.			
Content			
- Power series: basics, Taylor Series, applications - Differentiation in $\mathbb{R}^n$: basics, rules, applications - Integration in $\mathbb{R}^n$: basics, methods of integration, applications - Curves: basics, vector analysis, applications - Matrices: basics, determinants, applications - Linear maps: basics, eigenvalues and eigenvectors, applications			

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Additional remarks

No additional remarks.

Physics

Module abbreviation	Phys_EGM_E	Reg.-Nr.	3
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	2
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Haug, Thomas		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Physics		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
Written examination (90 minutes) Permitted aids: pocket calculator, not programmable; any written documents (printed or handwritten)			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After participating in the module courses, students are able to - understand and correctly apply the physical concepts related to kinematics, dynamics, fluid mechanics and thermodynamics. - examine motion and collision processes and evaluate oscillations. - analyze simple flow processes without friction. - assess and evaluate thermodynamic cycle processes. - determine simple heat transfer processes between solids and fluids. - perform selected physical experiments independently and in a team, evaluate and assess the data.			
Content			
- Kinematics of the mass point, free fall, horizontal throw - Dynamics, Newton's axioms, mass, force, gravitation - Momentum, work, energy, power, conservation of energy, sustainability - Collision processes: elastic and inelastic collisions - Rotary motion, torque, angular momentum, analogy of translation and rotation - Mechanics of rigid bodies, moment of inertia, Steiner's theorem			

- Oscillations, harmonic oscillation, free damped oscillation
- Mechanics of liquids and gases, pressure, gravitational pressure, Bernoulli's equation
- Kinetic theory of gases, gas pressure, thermal energy
- 1st law of thermodynamics, heat capacity, change of state of ideal gases
- Thermodynamic cycles
- Heat transfer, convection, thermal radiation, sustainable thermal management

The lecture includes the following sustainability aspects of the UN (SDGs):

4: Quality Education; 7: Affordable and clean Energy; 13: Climate Action

Literature

- TIPLER, Paul A. and Gene MOSCA, 2017. *Physics for Scientists and Engineers Extended Version (International Edition)*. New York: W. H. Freeman & Company. ISBN 978-1-319-15598-8

Additional remarks

Bonus system:

During the course, lab assignments (in the lab or online) may be assigned, which must be completed and documented in lab reports. In addition, students may answer weekly quiz questions. Depending on the quality of the work, bonus points toward the final exam grade can be earned based on the lab reports and performance on the quiz questions.

Computer Science

Module abbreviation	CS_EGM_E	Reg.-Nr.	4
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Oelker, Martin		
Lecturer(s)	Bock, Jürgen		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Computer Science		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
Within the practical course, six tests, which deal with essential topics of the lecture will be given. If the assignment is successfully completed, a test certificate will be awarded. A total of at least five tasks must be completed. Completed solutions must be presented individually within a fixed time frame, whereby questions about the solution concept and the programme created have also to be answered. Only if all four tests are acquired in time, admission is granted.			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After completing this module, students will be able to • exhibit a practical understanding of the broad and dynamic field of computer science. • apply their knowledge to the basic principles of data processing. • deal with basic terms and key concepts of computing and computer systems. • apply their theoretical understanding of computer networks to the Internet. • adhere to the basic concepts of cybersecurity in their daily use of computers.			
Content			
• Information and information representation for automated processing • Concepts of modern computer architectures • General concepts of operating systems • Programming principles and universal concepts of programming languages • Algorithms and data structures			

- General principles of computer networking
- Basic concepts of cybersecurity

Literature

- PETZOLD, Charles, 2023. *CODE* [online]. *the hidden language of computer hardware and software*. Upper Saddle River, NJ: Pearson Education, Inc. PDF e-Book. ISBN 978-0-13-790933-9. Available via: <https://elibrary.pearson.de/book/99.150005/9780137909339>.
- KUROSE, James F. and Keith W. ROSS, 2026. *Computer networking: a top-down approach*. Harlow: Pearson. ISBN 978-0-13-542933-4
- BROOKSHEAR, J. Glenn and Dennis BRYLOW, 2020. *Computer Science: an overview*. 13. edition. Harlow: Pearson. ISBN 1-292-26342-3, 978-1-292-26342-7
- TANENBAUM, Andrew S. and Todd AUSTIN, 2013. *Structured computer organization*. Boston, Mass.; Munich [u.a.]: Pearson. ISBN 978-0-273-76924-8
- TANENBAUM, Andrew S. and Herbert BOS, 2024. *Modern operating systems*. Hoboken, New Jersey: Pearson. ISBN Hoboken, NJ
- TANENBAUM, Andrew S., David WETHERALL and Nick FEAMSTER, 2020. *Computer networks*. Harlow, United Kingdom: Pearson Education Limited. ISBN 978-1-292-37406-2

Additional remarks

Prerequisite for participation in the written examination is a successfully completed practical course.

Mechanical Design

Module abbreviation	MechDes_EGM_E	Reg.-Nr.	5
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	2
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Tröber, Philipp		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Mechanical Design		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
At the end of the course, students are able to: - draw components and assemblies completely and in accordance with standards, as well as interpret technical drawings professionally. - apply various projection methods. - select tolerances, fits, and surface finishes appropriate for function and manufacturing. - evaluate the mountability of an assembly by a tolerance stack. - develop new components and assemblies by linking their knowledge and design them for production.			
Content			
- Technical drawing standards, conventions and documentation of components and assemblies - Reading, interpretation and creation of technical drawings - Projection methods and visualization of engineering components - Dimensioning, tolerance, fits and surface finishes according to technical standards - Functional and manufacturing-related selection of tolerances and fits - Tolerance analysis and tolerance stack calculations for assemblies - Design and evaluation of assemblies regarding mountability and manufacturability - Principles of component and assembly design			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

• Product development processes and design methodology • Design for manufacturing and production-oriented product development
Literature
• PAHL, Gerhard and Wolfgang BEITZ, 2003. <i>Engineering design: a systematic approach</i>. London [u.a.]: Springer. ISBN 3-540-19917-9 • BENDER, Beate, Kilian GERICKE and Gerhard PAHL, 2021. <i>Pahl/Beitz Konstruktionslehre: Methoden und Anwendung erfolgreicher Produktentwicklung</i>. Berlin: Springer Vieweg. ISBN 978-3-662-57302-0, 3-662-57302-4
Additional remarks
No additional remarks.

Manufacturing Technologies

Module abbreviation	ManuTechn_EGM_E	Reg.-Nr.	8
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	2
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Meyer, Roland		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Manufacturing Technologies		
Lecture types	SU/Ü/Pr-Lecture with integrated exercises and practical tasks		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After completing this module, students will be able to - describe the most important machining and non-machining manufacturing processes according to DIN 8580 and distinguish between them. - analyze the influence of key process parameters on component quality, dimensional accuracy, surface finish, cost-effectiveness, and material properties. - select suitable manufacturing processes for simple industrial applications and provide technical raring for their selection. - explain the relationships between design, manufacturing planning, machine tools, and the manufacturing process. - evaluate the effects of selected manufacturing processes on material properties and component behavior. - apply manufacturing-related problems to comparable industrial applications by considering aspects of sustainability (e.g., energy consumption, resource use, sustainable production) when evaluating manufacturing processes.			
Content			
- Introduction to Industrial Manufacturing Processes in accordance with DIN 8580 - Primary Forming			

- Secondary Forming
- Machining Technology
- Joining Processes
- Plastics Processing
- Sustainability: Introduction and Energy Consumption / Efficiency

Literature

- KOETHER, Reinhard, SAUER, Alexander, 2017. *Fertigungstechnik für Wirtschaftsingenieure* [online]. München: Hanser. PDF e-Book. ISBN 978-3-446-44990-9. Available via: <https://doi.org/10.3139/9783446449909?locatt=mode:legacy>.
- DENKENA, Berend, TÖNSHOFF, Hans Kurt, 2011. *Spanen: Grundlagen* [online]. Berlin [u.a.]: Springer. PDF e-Book. ISBN 978-3-642-19772-7. Available via: <https://doi.org/10.1007/978-3-642-19772-7>.

Additional remarks

Structured course rooms in Moodle, including, for example, a formula collection, calculation and exam examples, lecture notes, videos on course content, a list of learning objectives, in-depth supplementary materials for self-study, and a reading list

Business Administration

Module abbreviation	BA_EGM_E	Reg.-Nr.	9
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Albrecht, Tobias		
Lecturer(s)	Albrecht, Tobias		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Business Administration		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture students are able to - understand (on a high level) the various disciplines of business administration including the respective decision needs. - gain basic knowledge about selected practical business topics, which are not covered in subsequent subjects of the curriculum, including the setup of a company and human resource management. - evaluate the implications of economics for business decisions. - calculate and draw demand curve, supply curve and market equilibria as well as can apply the instruments to real life cases. - analyze the importance of monetary policy, especially can explain the role of the central banks and can calculate a consumer price index and an inflation rate.			
Content			
- Subjects of business administration and economics: economic principle, resources, companies, business as a science - Profit generation: the term profit, limitations, balance sheet, profit-/loss statement, shareholder value, entrepreneurial risks, leverage effect - Production factors (management, labor, means of production, raw material), further differentiation of management activities (leadership, planning, decision making, organization, monitoring) - Setup of a company: legal form, alliances & partnering, choice of industrial location			

- Human resource management: planning, recruiting, personnel layoff, personnel deployment, development, leadership - Microeconomics: market forms (polypoly, oligopoly, monopoly), price formation in the different market forms, market failure - Macroeconomics: monetary policy, definition of money, money creation, instruments of central banks, causes and consequences of inflation and deflation, consumer price index and inflation rate, economic welfare, gross domestic profit (GDP), economic growth
Literature
MANKIW, Nicholas Gregory and Mark P. TAYLOR, 2023. <i>Economics</i>. Andover, Hampshire: Cengage. ISBN 978-1-4737-8698-1
Additional remarks
No additional remarks.

Financial Accounting

Module abbreviation	FINACC_EGM_E	Reg.-Nr.	10
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	General Elective Sub- ject	2
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Eisenberg, Andrea		
Lecturer(s)	Eisenberg, Andrea		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 5 SWS		
Workload	Contact hours	58 h	
	Self-study	67 h	
	Total	125 h	
Subjects of the module	Financial Accounting		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture students are able to • know and use the specific terms of accounting and understand the theoretical foundations of financial accounting. • understand the structure and positions of balance sheets and determine the initial and subsequent measurement of balance sheet items in accordance with different accounting standards. • understand the differences between German GAAP and IFRS and apply both accounting frameworks to solve business problems. • understand the structure and positions of income statements and classify business transactions according to their impact on profit, cash flow, and financial performance. • understand and prepare cash flow statements and distinguish between cash-effective and non-cash-effective transactions. • analyze information in annual reports and prepare balance sheets, profit and loss accounts, income statements and cash flow statements for multiple accounting periods based on opening balances and business transactions.			
Content			
• Basic principles of accounting • German and European accounting principles and IFRS accounting standards			

- Balance Sheet: structure and balance sheet positions, initial recognition and subsequent measurement according to German GAAP and according to IFRS
- Profit and loss accounts: structure and positions, determination of profit according to German GAAP, EU directive and according to IFRS
- Accruals accounting
- Cash effective and non-cash effective transactions, cash flow statements
- Annual reports
- Case study: Founding and closing of a firm over six periods, preparation of balance sheet, profit and loss accounts and cash flow statements for each period
- Weekly exercise session

Literature

- WEETMAN, Pauline and Darren JUBB, 2024. *Financial accounting: an introduction*. Harlow, England: Pearson. ISBN 978-1-292-45706-2
- ALEXANDER, David, Christopher NOBES and Anne ULLATHORNE, 2020. *Financial accounting: an international introduction*. Harlow, England: Pearson. ISBN 978-1-292-29583-1
- IASB, . *IAS 1, 16, 36: International Accounting Standards*.

Additional remarks

No additional remarks.

Economics

Module abbreviation	ECON_EGM_E	Reg.-Nr.	11
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Eisenberg, Andrea		
Lecturer(s)	Horky, Florian		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Economic		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
schrP - written examination, 90 minutes			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture students are able to - understand the implications of economics for business decisions and analyze business and economic problems by using microeconomic and macroeconomic theory. - explain the difference between microeconomics and macroeconomics and describe basic microeconomic concepts such as market forms, price formation, market equilibrium and market failure. - calculate and draw demand curve, supply curve and market equilibria as well as apply the instruments to real-life cases. - understand the importance of monetary policy, explain the role of and instruments of central banks, and understand the causes and consequences of inflation and deflation. - calculating a consumer price index and an inflation rate. - understand the concept of economic welfare and growth, particularly the meaning of the GDP, and analyze transactions according to their impact on GDP.			
Content			
- Microeconomics: market forms (polypoly, oligopoly, monopoly), price formation in different market forms, market failure - International trade			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

Macroeconomics: monetary policy, definition of money, money creation, instruments of central banks, causes and consequences of inflation and deflation, consumer price index and inflation rate, economic welfare, gross domestic product (GDP), economic growth
Literature
MANKIW, Nicholas Gregory and Mark P. TAYLOR, 2026. <i>Economics</i>. Andover, Hampshire: Cengage Learning EMEA. ISBN 978-1-80503-049-2
Additional remarks
No additional remarks.

Start-up Project

Module abbreviation	SuP_EGM_E	Reg.-Nr.	12
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Götz, Heike		
Lecturer(s)	Eisenberg, Andrea		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 5 SWS		
Workload	Contact hours	58 h	
	Self-study	67 h	
	Total	125 h	
Subjects of the module	Start-up Project		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
PrB - Project report and oral presentation 15 min.			
Additional explanations regarding examinations			
Introductory part - TOPSIM simulation game (compulsory participation, admission requirement for project part) Project work (compulsory participation in group meetings) with the following components: - Presentation (oral presentation) - Research task (written form) - Project report (written form)			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
Students can successfully work on and solve complex practice-orientated tasks over the course of a semester. In particular students are able to: - systematically familiarise themselves with a specialist topic that is new to them. - collect and analyse information and data in a goal-oriented manner and cite it in a scientifically correct way. - find well-founded solutions to specific business issues in a team. - present work results convincingly and document them in accordance with technical and scientific standards. - apply methods of creativity techniques and project management. Dual students:			

After attending the lecture, dual students have reflected on the organization of their company and the contribution of functional roles in their company, particularly in the context of innovation processes. In addition, they have developed their personal and social skills and are, for example, able to handle simple managerial tasks within the framework of a project.

Content

Introduction:

- Conduct the Management Simulation "TOPSIM" (in small teams)

Project:

- Company's organisational structures, contributions of business functions, interfaces
- Elements of a business plan
- Presentation techniques and student presentations
- Research techniques (incl. documentation) and research task for students (E-learning course from teaching library)
- Setup of a mock business plan (medium size teamwork for students)

Dual students:

Due to the practical experience gained in their partner company dual students are in a better starting position for achieving the learning objectives.

In the context of management simulation, they take leadership roles and thereby incorporate actively their practical experience. In the "lessons learned" part they additionally have the task to reflect the simulation compared to the real situation as in their company. The results are presented in a brief presentation at the annual shareholders' meeting.

In the project part they primarily work on strategic tasks for which they incorporate their knowledge and their competencies acquired during their practical experience.

Literature

- TOPSIM - General Management Participant Manual.

Additional remarks

Notes on the lecture dates:

The TOPSIM simulation game is part of the introductory week and takes place as a block seminar at the beginning of the semester. The project part usually takes place fortnightly. The exact dates can be found in the semester schedule.

Electrical Engineering			
Module abbreviation	EGM_ETEC_E	Reg.-Nr.	13
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	4
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Haug, Thomas		
Lecturer(s)	Haug, Thomas		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 5 SWS		
Workload	Contact hours	58 h	
	Self-study	67 h	
	Total	125 h	
Subjects of the module	Electrical Engineering		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture students are able to • know and use specialist terminology in electrical engineering and understand the fundamental physical laws of electrical engineering and their interrelationships. • understand the boundary conditions of the relevant laws of physics and select appropriate methods and principles for solving engineering problems. • perform electrical engineering calculations accurately using appropriate units and methods for direct current (DC) and alternating current (AC) circuits. • analyze and calculate alternating current networks using complex numbers and established circuit analysis techniques. • understand and calculate electrical and magnetic field quantities, including the analysis of simple magnetic circuits. • understand the principles of semiconductor technology and key electronic components, and independently acquire, discuss, and apply electrical engineering knowledge both individually and in teams.			
Content			
• Direct current circuits: voltage, current, Ohm’s law, energy, power, Kirchhoff’s laws, Thevenin equivalent, Norton equivalent circuit, series connection, parallel connection, maximum power transfer, calculation of networks			

- Electric field: electric field quantities, capacitance, energy in the electrostatic field, forces in the electrostatic field, switching operations
- Magnetic field: magnetic field quantities, coil inductance, magnetic circuit, magnetic flux law, magnetic energy of the coil, forces in the magnetic field, induction law, self-induction, switching operations
- Alternate current circuit: sinusoidal change of electric quantities, circuit analysis of alternate current networks, power, frequency response, transformers
- Semiconductors: diode, transistor, operational amplifier, basics of electric circuits; digital circuits
- Measuring electric quantities

Literature

- HACKER, Viktor, SUMEREDER, Christof, 2020. *Electrical engineering: fundamentals* [online]. München; Wien: De Gruyter Oldenbourg. PDF e-Book. ISBN 978-3-11-052111-5, 978-3-11-052113-9. Available via: <https://doi.org/10.1515/9783110521115>.
- N. MAKAROV, Sergey, LUDWIG, Reinhard, BITAR, Stephen J., 2019. *Practical Electrical Engineering* [online]. Cham: Springer International Publishing. PDF e-Book. ISBN 978-3-319-96692-2. Available via: <https://doi.org/10.1007/978-3-319-96692-2>.
- HAGMANN, Gert, 2020. *Grundlagen der Elektrotechnik: das bewährte Lehrbuch für Studierende der Elektrotechnik und anderer technischer Studiengänge ab 1. Semester*. 18. edition. Wiebelsheim: AULA-Verlag. ISBN 978-3-89104-830-6, 3-89104-830-0
- TIPLER, Paul Allen and Gene MOSCA, 2008. *Physics for scientists and engineers*. New York: Freeman. ISBN 978-1-4292-0132-2

Additional remarks

Bonus system:

During the course, lab assignments (in the lab or online) may be assigned, which must be completed and documented in lab reports. In addition, students may answer weekly quiz questions. Depending on the quality of the work, bonus points toward the final exam grade can be earned based on the lab reports and performance on the quiz questions.

Software Development

Module abbreviation	SWD_EGM	Reg.-Nr.	14
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	3
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Schiendorfer, Alexander		
Lecturer(s)	Hyusmen, Sibel Talyat; Schiendorfer, Alexander		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Software Development: Software Development		
Lecture types	Software Development: SU/Ü - lecture with integrated exercises		
Examinations			
Software Development: schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
The students gain a practical understanding of the field of software development as an engineering tool to solve problems. After completing the module they are able to: • design, build, and test software applications using the Python programming language. • understand and document customer requirements and solve problems using coding/technology. • communicate the architecture of their software effectively to a team of software developers. • improve and debug existing code. • use automated tests to make sure the software is implemented correctly. • understand the need to work with other professionals, e.g. UX designer, graphic designer, product manager, technical writer.			
Content			
• Application areas of software development: mobile apps, web applications, tools for automation of repeating tasks, smart factories, artificial intelligence, etc. • The Python programming language • Variables, conditional statements, functions and code reuse • Data structures: Lists, dictionaries • Effective testing and debugging			

- Object-oriented analysis & design (Inheritance, Polymorphism)
- Simple algorithms and an informal introduction to algorithmic complexity
- Development of user-friendly graphical user interfaces
- The whole software development process from analysis to testing

Literature

- KLEIN, Bernd, 2021. *Einführung in Python 3: für Ein- und Umsteiger*. München: Hanser. ISBN 978-3-446-46556-5
- PILONE, Dan and Russ MILES, 2008. *Headfirst software development: [a brain-friendly guide]*. Beijing [u.a.]: O'Reilly. ISBN 0-596-52735-7, 978-0-596-52735-8
- FREEMAN, Eric and Elisabeth ROBSON, 2020. *Headfirst design patterns*. O'Reilly. ISBN 978-1-492-07800-5

Additional remarks

Bonus points system:

In lectures, there may be tasks and quizzes, which will lead to bonus points for the exam in case of good execution. At most 10% of the final grade can be improved via bonus points.

Engineering Mechanics			
Module abbreviation	EngMECH_EGM	Reg.-Nr.	15
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	3
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Haug, Thomas		
Lecturer(s)	Haug, Thomas; Polzer, Richard		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 5 SWS		
Workload	Contact hours	58 h	
	Self-study	67 h	
	Total	125 h	
Subjects of the module	Engineering Mechanics		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
Written exam, 90 minutes Permitted aids: Non-programmable calculator Written documents (handwritten or printed)			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After participating in the module courses, students are able to • explain the effects of forces and moments. • analyze and calculate static problems and apply equilibrium equations. • determine balance points and centroids of areas and bodies. • determine competent outer and inner load reactions. • solve friction problems. • estimate stresses, strains and deformations of bars and beams.			
Content			
• Introduction to the basics of statics (bars, beams, plates, etc., bearings and hinges, equilibrium conditions) • Central and common force systems, free-body diagram, moments • Balance points, centroids • Supporting structures, Truss structures and Determinacy • Friction			

- Definition of stresses and strains, deformation, stress state, Mohr's circle
- Linear elastic material law, elasticity theory
- Combined loading
- bending of beams, stress and deformation
- Torsion

Literature

- GROSS, Dietmar, Band 12013. *Engineering mechanics* [online]. Berlin [u.a.]: Springer. PDF e-Book. ISBN 978-3-642-30319-7. Available via: <https://doi.org/10.1007/978-3-642-30319-7>.
- GROSS, Dietmar, GROSS, Dietmar, HAUGER, Werner, SCHRÖDER, Jörg, WALL, Wolfgang A., BONNET, Javier, Band 2[2018]. *Engineering mechanics* [online]. Berlin [u.a.]: Springer. PDF e-Book. ISBN 978-3-662-56272-7. Available via: <https://doi.org/10.1007/978-3-662-56272-7>.
- GROSS, Dietmar, GROSS, Dietmar, HAUGER, Werner. *Technische Mechanik, Band 1-4* [online]. PDF e-Book.
- GROSS, Dietmar and others, 2017. *Statics – formulas and problems: engineering mechanics 1*. Berlin, Heidelberg: Springer. ISBN 978-3-662-53854-8
- HIBBELER, Russell C. and Jun Hwa LEE, 2023. *Engineering mechanics, statics*. Harlow, UK: Pearson. ISBN 1-292-44404-5, 978-1-292-44404-8
- KESSEL, Siegfried, FRÖHLING, Dirk, 2012. *Technische Mechanik: zweisprachiges Lehrbuch zu Grundlagen der Mechanik fester Körper = Engineering mechanics : bilingual textbook on the fundamentals of solid mechanics* [online]. Wiesbaden: Springer Vieweg. PDF e-Book. ISBN 978-3-8348-2182-9. Available via: <https://doi.org/10.1007/978-3-8348-2182-9>.
- GABBERT, Ulrich, RAECKE, Ingo, 2013. *Technische Mechanik für Wirtschaftsingenieure: mit 301 Abbildungen, 16 Tabellen, 83 Beispielen* [online]. München: Hanser. PDF e-Book. ISBN 978-3-446-43595-7, 978-3-446-43253-6. Available via: <https://doi.org/10.3139/9783446435957>.
- HIBBELER, Russell C. and Jun Hwa LEE, 2023. *Mechanics of Materials*. Harlow: Pearson. ISBN 1-292-72573-7, 978-1-29-272573-4

Additional remarks

Bonus system:

Weekly test questions (quiz) may be answered. Depending on the quality of the results achieved, bonus points for the exam performance can be earned.

Project- and Quality-Management			
Module abbreviation	PQM_EGM	Reg.-Nr.	16
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	6
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Pelzel, Robert		
Lecturer(s)	Bauer, Rudolf		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Project- and Quality-Management		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
LN - written exam, 90 minutes			
Additional explanations regarding examinations			
Successful participation with presence duty in the lessons.			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
By attending the course, the students will be able to: • understand basic principles and methods of Project Management. • structure and plan an industrial or engineering project. • understand the requirements regarding a professional Project Manager. • know main characteristics of Agile Project Management. • understand basics of a comprehensive Quality Management. • know specific Quality methods, which shall be applied in various use cases. For dual students: Dual students have reflected experiences from their partner companies in the light of the learned methods and are capable to demonstrate the practical application of the methods in practical examples from their companies.			
Content			
• Project kick-off procedures • Relevant project organisation, RFQ, Func Spec. • Setting right project goals, SMART • Planning of actions, WBS, GANTT, MPM, CPM, CP			

- Starting project work and controlling, BEA, EV, MS-Trends
- Organizing acceptance tests
- Project review and lessons learned
- Basics of quality management
- ISO 9001 and other standards
- TQM, EQA, LEP
- Main tools, FMEA, QFD, SPC, BCG
- Lean six sigma

Literature

- SCHULZ, Marcus and Tinka MEIER, 2025. *Project Management: a practical guideline for today's project managers*. - ICB 4.0. Tübingen: UVK. ISBN 978-3-381-13481-6
- 2024. *The Standard for Program Management - Fifth Edition*. Chicago: Project Management Institute. ISBN 9781628258141
- KERZNER, Harold, 2025. *Project management: a systems approach to planning, scheduling, and controlling*. Hoboken, New Jersey: Wiley. ISBN 978-1-394-29003-1
- KÖSTER, Kathrin, 2009. *International project management*. London: SAGE Publications Ltd. ISBN 978-1-4129-4620-9, 978-1-4129-4621-6
- OTTMANN, Roland and Heinz SCHELLE, 1. *Projektmanagement: die besten Projekte, die erfolgreichsten Methoden*. München: Beck. ISBN 978-3-406-57175-6, 3-406-57175-1
- BURGHARDT, Manfred, 2018. *Projektmanagement: Leitfaden für die Planung, Überwachung und Steuerung von Projekten*. 10. edition. Erlangen: Publicis Publishing. ISBN 978-3-89578-472-9, 3-89578-472-9

Additional remarks

No additional remarks.

Cost Accounting

Module abbreviation	COSTA_EGM	Reg.-Nr.	17
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	3
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Eisenberg, Andrea		
Lecturer(s)	Eisenberg, Andrea		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Cost Accounting		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
At the end of the course students are able to • know and use the specific terms of cost accounting and understand the purpose of cost accounting as well as the difference between financial accounting and cost accounting. • classify costs by nature of cost, by traceability of cost and by cost behavior. • prepare simple calculations of inventory, cost of goods sold (COGS) and prices based on a blanket rate and perform the allocation and apportionment of overhead costs using a cost allocation sheet based on absorption costing, including the calculation of departmental overhead rates. • calculating unit costs using different versions of process costing and different versions of job order costing. • understand the concept of variable costing and the meaning of the contribution margin, and apply contribution analysis, economies of scale, break-even analysis, product portfolio decisions and manufacturing process decisions to real-life cases. • understand the importance of standard costing and comparative cost accounting, prepare static and flexible budgets, and calculate and interpret different types of variances.			
Content			
• Difference between financial and cost accounting • Classification of cost according to nature, traceability and behavior			

- Absorption costing: blanket rate, allocation and apportionment of overhead cost with cost allocation sheet, process costing, job order costing with plant-wide allocations rate, departmental overhead rate and machine hour rates
- Variable costing: contribution margin, direct costing, multi-step contribution analysis, decision making with contribution margin, economies of scale, pricing decisions, break-even analysis, product mix, production process selection
- Standard costing: purpose of standard costing, static and flexible budget, variance analysis
- International comparison of accounting applications
- Casework

Literature

- TASCHNER, Andreas and Michel CHARIFZADEH, 2016. *Management and cost accounting: tools and concepts in a central European context*. Weinheim: Wiley-VCH. ISBN 978-3-527-50822-8, 3-527-508228
- DRURY, Colin and Mike TAYLES, 2024. *Management and cost accounting*. Andover: Cengage. ISBN 978-1-4737-9124-4

Additional remarks

No additional remarks.

Marketing			
Module abbreviation	EGM_MKT_E	Reg.-Nr.	18
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	4
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Schwandner, Gerd		
Lecturer(s)	Schwandner, Gerd		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Marketing		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
Marketing: schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
The students are able to • explain the tasks of marketing in a company and discuss why market-oriented management is required, including concepts such as customer satisfaction or purchase behavior. • distinguish the relationship between business strategy, marketing plan (esp. market segmentation and positioning) and marketing-mix. • analyze markets, develop a market segmentation and select viable target markets. • develop market mix policies (product, price, place, promotion) while ensuring that individual policies are complementary (integrated marketing). • apply key marketing tools in practice. For dual students: Dual students are invited to bring their experiences and current marketing topics from their partner companies into the discussion in the respective chapters of the class. In this way, they learn to transfer theoretical methods into the practice of their partner companies.			
Content			
• Marketing fundamentals: customer orientation, purchase behavior of consumers, purchase behavior of organizations, customer relationship management, differences in B2B versus B2C marketing			

- Key terms and tools of business strategy
- Market research, market segmentation, target market definition, positioning and differentiation
- Product policy, incl. innovation, brand management, after-sales management
- Price (and terms and conditions), incl. price determination process, price-demand-function, price differentiation and modification, value-pricing
- Distribution policy, incl. sales channels, push vs. pull, vertical marketing systems, multichannel sales, introduction to retail and wholesale business
- Communications (Promotion), incl. advertising, sales promotion, public relations, personal selling, direct marketing
- Selected marketing topics, e.g. e-commerce, internet marketing, viral marketing

Literature

- KOTLER, Philip, Kevin Lane KELLER and Alexander CHERNEV, 2026. *Marketing management*. Harlow, Essex: Pearson. ISBN 1-292-46271-X, 978-1-292-46271-4

Additional remarks

No additional remarks.

Material Science

Module abbreviation	MATSCI_EGM_E	Reg.-Nr.	19
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Landesberger, Martin		
Lecturer(s)	Landesberger, Martin		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Material Science		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
Material Science: schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture students are able to - understand the different types of chemical bonds, their occurrence in materials, and the influence of metallic crystal structures on material properties and plastic formability. - identify, describe, and sketch crystal defects and explain the role of dislocations in the plastic deformation of metals. - understand the relationship between crystal defects and the various hardening mechanisms of metallic materials. - explain diffusion mechanisms in solids, evaluate the influence of time and temperature on diffusion processes, and relate diffusion to engineering applications. - interpret phase diagrams, particularly the iron-carbon phase diagram, and explain their significance for material behavior and processing. - understand solidification and solid-state transformation processes, including nucleation, crystal growth, martensitic transformation, and precipitation reactions, and assess their influence on microstructure and material properties.			
Content			
- Atomic structure and the nature of chemical bonding - Structures of solids, especially metals - Imperfections in real crystals			

- Plastic deformation in ideal and real crystals, hardening effects by disorders
- Diffusion – mechanism, meaning and applications
- Phases and phase diagrams
- Kinetics of solidification
- Kinetics of solid-state reactions – martensitic transformation and precipitation reactions
- Materials testing and material properties

Literature

- ASKELAND, Donald R. and Wendelin J. WRIGHT, c 2016. *The science and engineering of materials*. Boston, Mass.: Cengage Learning. ISBN 978-1-305-07710-2, 1-305-07710-5
- CALLISTER, William D. and David G. RETHWISCH, 2020. *Materials science and engineering: an introduction*. 10. edition. Hoboken, NJ: Wiley. ISBN 978-1-119-45391-8
- FISCHER, Traugott, 2009. *Materials science for engineering students*. Amsterdam [u.a.]: Elsevier, Academic Press. ISBN 978-0-12-373587-4, 0-12-373587-4

Additional remarks

No additional remarks.

Controlling

Module abbreviation	EGM_CONTR_E	Reg.-Nr.	20
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	4
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Eisenberg, Andrea		
Lecturer(s)	Eisenberg, Andrea		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 5 SWS		
Workload	Contact hours	58 h	
	Self-study	67 h	
	Total	125 h	
Subjects of the module	Controlling		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
Students - understand the meaning of strategic management and the role of management accounting. - can apply the costing approaches target costing and activity-based costing to buisness cases. - can calculate different key financial indicators and interpret them. - are able to make investment decisions based on static and dynamic methods. - can prepare budgets, both static and a flexible budget, can perform a detailed variance analysis and can calculate the elements of the working capital life cycle. - can solve case studies by applying the knowledge acquired in the class.			
Content			
- Controlling and Management accounting - Strategic management and management accounting - Strategy formulation, implementation and evaluation - Modern costing approaches: Target Costing and Activity-based costing - Investment appraisal: Static and dynamic methods - Key Financial indicators, value-based and profitability ratios - Budgeting, budgeting process, static and flexible budgets, working-life cycle			

Case studies
Literature
- WEETMAN, Pauline and Darren JUBB, 2024. <i>Financial and management accounting: an introduction</i>. Harlow, England: Pearson. ISBN 978-1-292-45704-8 - DAVID, Fred R., Forest R. DAVID and Meredith E. DAVID, 2025. <i>Strategic Management: concepts and cases: a competitive advantage approach</i>. Harlow: Pearson Education Limited. ISBN 978-1-292-74527-5 - GRANT, R., 2025. <i>Contemporary strategy analysis</i>. Hoboken, NJ: Wiley. ISBN 978-1-394-25159-9
Additional remarks
No additional remarks.

Selected topics of International Management

Module abbreviation	SelecTopIM_EGM_E	Reg.-Nr.	21
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	4
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Schwandner, Gerd		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	48 h	
	Self-study	52 h	
	Total	125 h	
Subjects of the module	Selected topics of International Management		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
mdIP - oral exam, 15 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After completing the lecture, the students will be able to: • explain and discuss key terms and challenges in conduction international business. • analyze the environment that multinational enterprises face, incl. cultural differences, political influence/trade barriers, foreign exchange. • evaluate options for companies to internationalize their business, including selection of markets and market entry modes. • understand other topics regarding international management (to be defined depending on lecturers)			
Content			
• Introduction: globalization, international business, scenarios going forward • Environment: cultural, political & legal, economical, society #svhs#&## ethics • Trade and investment: trade theory, governmental influence, cross-national cooperation and agreements (bilateral, regional, global), the European Union, other regional trade blocs • Foreign exchange: FX markets and instruments, the IMF, exchange-rate regimes, the Euro, business impact of FX rates • Strategy and structure: international strategy analysis, country evaluation and selection, export-import, collaboration-direct investment, organization of international business • International Marketing-Mix			

Additional topics that are relevant in international management (to be defined depending on the lecturers)
Literature
- DANIEL, John D., Lee H. RADEBAUGH and Daniel P. SULLIVAN, 2022. <i>International Business: environments and operations</i>. 17. edition. Harlow: Pearson. ISBN 978-1-292-21473-3 - HOLLESEN, Svend and Ana BOGDANOVIC, 2025. <i>Global Marketing</i>. Harlow: Pearson. ISBN 978-1-292-44081-1
Additional remarks
No additional remarks.

Intercultural Studies

Module abbreviation	IntCult_EGM	Reg.-Nr.	23
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	6
Module frequency	only winter term	Module duration	1 semester
Responsible for module	McDonald, James		
Lecturer(s)	McDonald, James		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Intercultural Studies		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
Student research project without oral examination, 8 - 15 pages elaboration, 15 - 20 pages presentation			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture students are able to • understand and explain relevant theories of culture and intercultural communication. • analyze case studies related to intercultural communication, including management styles and corporate cultures. • apply theories and insights from case studies to a variety of intercultural communication contexts. • identify and evaluate the influence of culture on communication processes in different settings. • reflect on and explain the effects of culture on their own communication and the communication of others. • demonstrate an enhanced ability to understand cultural differences and their impact on interpersonal and organizational communication.			
Content			
• Concepts and definitions of culture and intercultural communication • Cultural dimensions and models (e.g. Hofstede, Hall, Trompenaars) • Verbal and non-verbal communication across cultures • Cultural values, perceptions, stereotypes and intercultural awareness • Intercultural challenges in international business environments • Management styles and leadership across cultures			

- Corporate cultures and their influence on communication
- Analysis and discussion of intercultural communication case studies
- Application of intercultural communication theories to real-world situations
- Reflection on personal cultural background and intercultural competence development

Literature

- HOFSTEDE, Geert, 2002. *Culture's consequences: comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks [u.a.]: Sage Publ. ISBN 0-8039-7324-1, 0-8039-7323-3
- HALL, Edward Twitchell, 1989. *Beyond culture*. New York [u.a.]: Doubleday. ISBN 978-0-385-12474-4, 0-385-12474-0
- TROMPENAARS, Fons and Charles HAMPDEN-TURNER, 2020. *Riding the waves of culture: understanding diversity in global business*. London; Boston: Nicholas Brealey Publishing. ISBN 978-1-529-34618-3, 1-529-34618-5
- STOUDEMIRE, Tyronne, 2024. *Diversity Done Right: Navigating Cultural Difference to Create Positive Change in the Workplace*. Newark: John Wiley & Sons, incorporated. ISBN 978-1-394-23070-9
- LUSTIG, Myron W. and Jolene KOESTER, c2012. *Intercultural competence: interpersonal communication across cultures*. Boston [u.a.]: Pearson Prentice Hall. ISBN 978-0-205-86176-7

Additional remarks

No additional remarks.

Project			
Module abbreviation	PROJ_EGM	Reg.-Nr.	24
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	7
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Meintrup, David		
Lecturer(s)	Reuter, Stefan		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Project		
Lecture types	Project		
Examinations			
Proj - Project report and oral presentation 15 min.			
Additional explanations regarding examinations			
Regular attendance is mandatory for the successful execution of team-based project work. The specific requirements regarding mandatory attendance are determined by the respective instructor.			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After completing the module, students will be able to: - independently manage a semester-long, complex project, demonstrating responsibility and self-direction. - acquire new knowledge rapidly and adapt to evolving project challenges. - analyze and solve multifaceted problems by integrating technical and business perspectives, using methods and tools from their foundational studies. - apply project management strategies and collaborate effectively within a team. - communicate, present, and document project results convincingly to stakeholders. For dual students: Due to their broader practical experience and the application of theoretical content in their companies, after passing the module dual students are capable to deal with more depth with the project task and to solve more complex problems. An increased methodological and social competency leads to a deeper understanding of team processes.			
Content			
- Team project on selected topic for one semester - Interdisciplinary focus (engineering & management)			

- Apply project management methods and tools
- Analyze and structure complex, practical problems
- Combine technical and business knowledge
- Collaborate in teams to solve challenges
- Document, present, and reflect on project results

Literature

- HEMMRICH, Angela, HARRANT, Horst, 2015. *Projektmanagement: in 7 Schritten zum Erfolg* [online]. München: Hanser. PDF e-Book. ISBN 978-3-446-44733-2, 978-3-446-44620-5. Available via: <https://doi.org/10.3139/9783446447332>.

Additional remarks

For dual students:

Dual partner companies are invited to bring in project topics which are worked on by their dual students. Potentially, non-dual students can participate in these projects if capacity allows for this. It is possible to do projects in the practical phase, given the content-wise suitability. The process of recognition and grading follows the standard credit transfer process documented in the guideline.

Automation Technologies

Module abbreviation	AUT_EGM	Reg.-Nr.	25
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	3
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Großmann, Daniel		
Lecturer(s)	Großmann, Daniel		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Automation Technologies		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture, students will be able to • have a basic understanding of automation technology. • recognise automation potential and the demand for automation. • have a basic understanding of information and communication technology in automation systems. • develop automation systems.			
Content			
• Basics of industrial processes and control • Sensors and actuators • Automation controller • Programming of automation controllers (with exercise) • Operation and monitoring • Industrial communication • Development of automation systems			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

Literature

- DEY, Chanchal, SEN, Sunit Kumar, 2020. *Industrial automation technologies* [online]. Boca Raton; London; New York: CRC Press, Taylor & Francis Group. PDF e-Book. ISBN 978-0-429-29934-6. Available via: <https://doi.org/10.1201/9780429299346>.

Additional remarks

No additional remarks.

Production Systems

Module abbreviation	ProdSyst_EGM_E	Reg.-Nr.	26
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	4
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Meyer, Roland		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Production Systems		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending this lecture students will be able to: • know and be secure with the areas, elements and typical terms of production engineering. • know state of art, basic ways of organizing and applying production systems. • understand and assess the concept of added value, waste and profitability in production. • recognize, describe and assess types of machine tools and their applications. • incorporate and contribute to tasks within an industrial production planning department regarding machining areas and assembly tasks. • solve tasks in designing production systems in teams and can present the results. • understand actual digital methods and supports in production systems, the impact and implications of sustainability and apply them to organization as well as to technology of production systems.			
Content			
• Introduction • Machine tools • Lean manufacturing • Assembly technology • Digital manufacturing			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

• Sustainable production • Production logistics • Production training • Excursion to production company
Literature
• LIKER, Jeffrey K., 2021. <i>The Toyota way: 14 management principles from the world's greatest manufacturer</i>. New York: McGraw-Hill. ISBN 978-1-26-046852-6 • BIDANDA, Bopaya and Harold Bright MAYNARD, 2023. <i>Maynard's industrial and systems engineering handbook</i>. New York, NY: McGraw Hill. ISBN 978-1-260-46156-5, 1-260-46156-4
Additional remarks
No additional remarks.

Business Information Systems			
Module abbreviation	BusinfSyst_EGM	Reg.-Nr.	27
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	4
Module frequency	winter and summer term	Module duration	1 semester
Responsible for module	Zehbold, Cornelia		
Lecturer(s)	Zehbold, Cornelia		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Business Information Systems		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90 - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
Computer Science			
Objectives			
At the end of the course, students are able to • assess contents, objectives and challenges of information systems in the business world, focusing on design, implementation, management and control of information and communication technology [ICT] as well as on the management of interfaces between systems and companies. • distinguish between different types of information and communication systems and assess their suitability for various business contexts. • earn in-depth knowledge about requirements for the effective and efficient use of ICT as well as about the importance of information systems for company success in the context of the increasing digitalization of economy and society. • solve business problems in the field of information systems by applying systematic approaches and by identifying alternative solutions in teams.			
Content			
• The importance of information systems • IT infrastructures and web technologies • Databases and information management • Operational information processing (ERP, SCM, CRM, etc.) • E-procurement and e-commerce			

- Business process management
- IT-enabled knowledge management
- Green IT
- IT-enabled decision making
- E-Society and political/legal aspects of information systems
- Applications and case studies: information systems in business practice
- Digitization of the economy and society

Literature

- LAUDON, Kenneth C., Jane Price LAUDON and Carol Guercio TRAVER, 2025. *Management Information Systems: Managing the Digital Firm*. London: Pearson Education Limited. ISBN 978-1-292-48259-0
- LAUDON, Kenneth C., Jane Price LAUDON and Detlef SCHODER, 2016. *Wirtschaftsinformatik: eine Einführung*. München: Pearson. ISBN 978-3-86894-269-9, 3-86894-269-6

Additional remarks

Note: A detailed breakdown of the workload (total 125 h) will be given in the first lecture. The exercises include web-based training and identifying alternative solutions in teams.

Bonus system: In the course exercises are held that lead to a bonus point for the examination depending on the quality of the solution. The maximum bonus points is based on APO.

Study abroad: Similar subjects are offered at many partner universities abroad. In English-speaking countries, they are offered under the title "Business Information Systems", "Management Information Systems" or simply "Information Systems".

Statistics			
Module abbreviation	Stat_EGM_E	Reg.-Nr.	28
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	6
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Schlickewei, Ulrich		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Statistics		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
schrP - written examination, 90 minutes			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After completing the class, students: • can explore, describe and visualize data sets using the methods of descriptive statistics. • can model random phenomena with mathematical language probability. • can draw conclusions about the properties of an underlying population from the properties of a sample, using the appropriate tools of inferential statistics. • can assess, model, develop solution approaches for, and correctly and critically interpret quantitative application problems in engineering against the background of the statistical methods taught in the lecture. • have acquired sufficient command of a statistical software package to implement the methods learned in practice.			
Content			
• Introduction: notion of statistics, data, data science • Descriptive statistics: data visualization, measures of location and dispersion • Bivariate data: association, correlation and contingency • Probability theory: notion of probability, conditional probability, random variables • Probability distributions: discrete and continuous distributions • Inferential statistics: point estimators, confidence intervals, hypothesis tests • Linear Regression			

- Applications to quantitative problems in engineering
- Use of a statistical software package

Literature

- GOOS, Peter and David MEINTRUP, 2015. *Statistics with JMP: graphs, descriptive statistics, and probability*. Chichester, West Sussex: Wiley. ISBN 978-1-119-03574-9
- GOOS, Peter and David MEINTRUP, 2016. *Statistics with JMP: hypothesis tests, ANOVA and regression*. Chichester, West Sussex: Wiley. ISBN 978-1-119-09716-7, 978-1-119-09704-4
- MONTGOMERY, Douglas C. and George C. RUNGER, 2018. *Applied statistics and probability for engineers*. Hoboken, NJ: Wiley. ISBN 978-1-119-58559-6
- SPEEGLE, Darrin and Bryan CLAIR, 2021. *Probability, Statistics, and Data: A Fresh Approach Using R*. Chapman & Hall. ISBN 9780367436674

Additional remarks

No additional remarks.

Introduction to AI

Module abbreviation	IntroAI_EMG_E	Reg.-Nr.	29
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	7
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Schlickewei, Ulrich		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	46 h	
	Self-study	79 h	
	Total	125 h	
Subjects of the module	Introduction to AI		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
PF - Portfolio Exam (with exams before and a written exam 60 min within the examination period)			
Additional explanations regarding examinations			
The detailed structure and requirements of the portfolio examination (e.g. the individual portfolio elements and their weighting) will be defined and communicated in good time before the module is offered for the first time.			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After successfully completing the module, students are able to - explain the fundamental concepts, subfields and historical development of artificial intelligence and distinguish AI from related terms such as machine learning and data science. - describe how the most important machine learning approaches (supervised and unsupervised learning) work and select suitable approaches for typical problem types. - prepare and explore data sets and apply selected AI and machine learning methods to concrete problems using common software libraries. - assess the quality, limitations and risks of AI systems and evaluate their suitability for a given engineering or business application. - discuss ethical, legal and societal implications of AI (e.g. bias, transparency, data protection) and derive requirements for the responsible use of AI. - document their work in a structured portfolio and communicate their approach and results clearly to both a technical and a non-technical audience.			
Content			
Introduction: notion, history and subfields of artificial intelligence			

- Overview of AI approaches: symbolic AI, search and knowledge-based systems, machine learning
- Machine learning basics: supervised and unsupervised learning
- Data preparation, exploration and feature handling
- Selected learning algorithms: regression, classification, decision trees, artificial neural networks
- Introduction to deep learning and generative AI / large language models
- Model evaluation: metrics, overfitting and underfitting, validation
- AI tools and software libraries
- Applications of AI in engineering and management
- Responsible AI: ethics, bias, transparency, data protection and regulation

Literature

- RUSSEL, Stuart and Peter NORVIG, 2021. *Artificial Intelligence: A Modern Approach*. Pearson. ISBN 978-0-13-461099-3
- JAMES, Gareth and others, *An Introduction to Statistical Learning: with Applications in Python*. Springer. ISBN 978-3-031-38747-0
- GÉRON, Aurelien, *Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow*. O'Reilly. ISBN 978-1-098-12597-4

Additional remarks

For dual students:

Dual students are invited to bring problem statements and data sets from their partner companies into the module. In this way, they transfer the AI and machine learning methods acquired in class to real applications in their companies and reflect critically on their opportunities and limitations.

Selected Topics of Strategic and International Management

Module abbreviation	SelecTopStratIM_EGM_E	Reg.-Nr.	30
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	6
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Eisenberg, Andrea		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Selected Topics of Strategic and International Management		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
PF - Portfolio-Exam (all exams before the examination period)			
Additional explanations regarding examinations			
The detailed structure and requirements of the portfolio examination (e.g. the individual portfolio elements and their weighting) will be defined and communicated in good time before the module is offered for the first time.			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the lecture students are able to • understand and analyze the problems of companies actively in an international environment. • analyze cases of restructuring. • develop small cases of a multinational company including cross border transaction, supply chain, economic and taxation issues. • develop strategies for small and midsize companies. • understand and apply the common tools of strategic management.			
Content			
• Topics of Strategic Management including strategic management tools, strategy development, strategy implementation and evaluation • Topics of International Management in multinational companies including international trade, taxation, cross border transactions and supply chain management			

Literature
• AMASON, Allen C. and Andrew WARD, 2021. <i>Strategic management: from theory to practice</i>. New York; London: Routledge. ISBN 978-0-367-43005-4, 978-0-367-43006-1 • PORTER, Michael E., 2001. <i>The competitive advantage of nations: with a new introduction</i>. Basingstoke [u.a.]: Palgrave. ISBN 0-333-73642-7
Additional remarks
No additional remarks.

Production Planning & Logistics			
Module abbreviation	ProPlanLog_EGM_E	Reg.-Nr.	31
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	6
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Jattke, Andreas		
Lecturer(s)			
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	Production Planning & Logistics		
Lecture types	SU/Ü-Lecture with practical exercises		
Examinations			
schrP90-120 written examination 90-120 minutes			
Additional explanations regarding examinations			
schrP - written examination, 90 minutes			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
The students are able to: • select production planning and control methodologies in different branches and sizes of industry. • distinguish production planning philosophies push versus pull. • define adequate KPI's to control the success of production planning methodologies. • define production planning methodologies in the whole supply chain including external customers and suppliers. • integrate the meaning of PPS systems in line with digitalization in industry 4.0. For dual students: Dual students have reflected experiences from their partner companies in the light of the learned methods of production planning and logistics. They are capable to explain their application in concrete practice examples from their partner companies. Additionally, they can analyze and judge the method of production planning implemented in their partner company.			
Content			
• PPC Strategies • Production Programme Planning and Lot sizing • Order and Capacity Scheduling			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

• Integration of PPC in ERP and Industry 4.0 • Production Controlling and KPI's • Different examples from industry
Literature
• BUZACOTT, John A., 2013. <i>Production planning and control: basics and concepts</i>. München: Oldenbourg. ISBN 978-3-486-72247-5, 3-486-72247-6
Additional remarks
No additional remarks.

Bachelor Thesis

Module abbreviation	EGM_BSEM_E	Reg.-Nr.	33
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	
Module frequency	winter and summer term	Module duration	1 semester
Responsible for module	Eisenberg, Andrea		
Lecturer(s)			
Language of instruction	German/English	Language of exams	German/English
Credit points / SWS	15 ECTS / 0 SWS		
Workload	Contact hours	23 h	
	Self-study	352 h	
	Total	375 h	
Subjects of the module	Bachelor Thesis Seminar Bachelor Thesis		
Lecture types	Bachelor Thesis Seminar Bachelor Thesis		
Examinations			
Bachelor Thesis Seminar: LN - participation without/with success Bachelor Thesis: Bachelor Thesis			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
Bachelor Thesis Seminar			
Recommended prerequisites			
None			
Objectives			
After attending this module, students are able to • know methods of scientific work. • conduct systematic literature research. • compile a clear structure and high-level table of content for their thesis. • conduct expert discussions about the structure and storyline of their thesis. Dual students additionally acknowledge the regulations of their partner company regarding the preparation of scientific work. They must ensure that the topic and the structure of their thesis is agreed between their advisor in the company and the supervising professor at the university. After completing his/her bachelor thesis, students are able to • analyze and solve an engineering and/or management related topic using scientific methods within an appropriate timeframe. • apply scientific engineering and/or management methods. • work self-dependent and solve the given problem in a structured and creative manner.			

Dual students are able to

- analyze a problem present in their partner company using scientific methods and propose a solution.
- present and defend their graduation work in a way suitable for management.

Content

Introduction

- Scientific and methodological requirements
- Relevant formal regulations
- Methods of research and documentation (incl. introduction by the library)

Identification of a topic

Getting started and organizing:

- Getting in contact with companies
- Designing a project plan
- Defining a structure / high-level table of content
- Registration of the thesis
- Topic of the thesis shall preferably be a practical topic provided by a company
- The Bachelor thesis work is supervised by a THI professor
- The thesis work will be accompanied by two evaluators, one of them being responsible for the appraisal
- The Bachelor thesis shall comprise a workload of approximately 300 hours

Dual students:

The Bachelor thesis must be done in cooperation with the partner company. The student finalizes the topic together with his/her advisor at the company. The results are presented to the dual partner and the supervising professor.

Literature

- BOOTH, Wayne C. and others, 2024. *The craft of research*. Chicago; London: The University of Chicago Press. ISBN 978-0-226-82667-7, 978-0-226-83388-0
- HOLTOM, Daniel and Elizabeth M. FISHER, 2011. *Enjoy writing your science thesis or dissertation! A step-by-step guide to planning and writing dissertations and theses for undergraduate and graduate science students*. London: Imperial College Press. ISBN 1-86094-090-0, 1-86094-207-5

Additional remarks

No additional remarks.

Internship			
Module abbreviation	EGM_INTSHIP_E	Reg.-Nr.	34
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	5
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Schneider, Yvonne		
Lecturer(s)			
Language of instruction	German	Language of exams	German
Credit points / SWS	23 ECTS / 0 SWS		
Workload	Contact hours	0 h	
	Self-study	575 h	
	Total	575 h	
Subjects of the module	Internship		
Lecture types	Pr-Internship		
Examinations			
PrB: Internship report			
Additional explanations regarding examinations			
• Internship report to describe content, character and key learnings of internship. • The practical studies semester must be completed in a non-German speaking foreign country. • Alternatively, the practical studies semester may be completed in German-speaking countries if a connection to international business is guaranteed (e.g. through work in the areas of international product management, global product development, international marketing, international production and logistics).			
Prerequisites according examination regulation			
According to § 8 (2): Only those students are eligible to begin the internship of the practical study semester who have achieved at least the grade “sufficient” in all examinations and all study-accompanying assessments relevant for passing in the first study phase, and who have earned at least 20 ECTS credits from the compulsory modules of the second study phase. According to § 9: The practical study semester of the second study phase comprises a period of 20 weeks and is accompanied by coursework.			
Recommended prerequisites			
None			
Objectives			
After completing the internship semester, students will be able to: • describe and explain technical and business processes and their interrelations within a company. • identify and reflect on typical tasks and responsibilities of management engineers in professional practice. • apply discipline-specific knowledge, methods, and tools acquired during the degree program to real-world tasks and problems. • develop and present application-oriented solutions using scientifically grounded approaches,			

- work independently on assigned tasks and complete them within defined timeframes.
- critically reflect on their own professional behavior and identify areas for personal and professional development in the context of their future career.

Dual students do their internship at their partner company. They benefit from their broader and deeper previous practical experience and from their knowledge of the company and work on more challenging topics. A systematic reflection of the linking of study contents and practice at the company in the context of the internship takes place.

Content

The internship semester enables students to gain practical insights into the professional field of industrial engineering and management. The focus of the internship is aligned with the operational tasks of the host company and builds upon the technical, economic, and methodological foundations taught in the academic program. Typical contents of the internship semester include:

- gaining familiarity with technical and business processes and understanding their interdependencies within the company,
- working on practical assignments in the field of industrial engineering and management,
- applying and deepening engineering and management knowledge in company-based projects,
- gaining insight into company-specific workflows, organizational structures, and project management practices,
- reflecting on one's own professional role and further developing personal and social competencies in a real-world work context.

According to §29 (3) APO dual students do their internships at their partner company. In their internship report they report on the link between study program and practical experiences.

Literature

Will be specified at the beginning.

Additional remarks

- The internship can only be conducted in companies which are approved.
- The qualifications of the supervisor should be on the same level as the degree of the respective study program.
- Universities and associated organizations are not permitted to host internships.

Seminar

Module abbreviation	EGM_SEM_E	Reg.-Nr.	35
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Compulsory Subject	3
Module frequency	winter and summer term	Module duration	1 semester
Responsible for module	Meintrup, David		
Lecturer(s)	Huber, Sina; Meintrup, David; NN,		
Language of instruction	German/English	Language of exams	German/English
Credit points / SWS	2 ECTS / 2 SWS		
Workload	Contact hours	23 h	
	Self-study	27 h	
	Total	50 h	
Subjects of the module	Seminar		
Lecture types	S-Seminar		
Examinations			
LN - participation without/with success			
Additional explanations regarding examinations			
Performance record for active participation in the 3-day seminar. Evaluation "with success" (m. E.) / "without success" (o. E.).			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
The practical seminar imparts professionally oriented competencies relevant to the work of an engineer. At the end of the course, students are able to: - independently work on complex technical tasks within a team. - apply their specialist knowledge to concrete questions. - strengthen their social, personal, and methodological competencies (e.g., through moderation and presentation). - implement technical tasks in a team and solve problems collaboratively. - represent real-world processes through simulations. - use alternative teaching and learning platforms. For dual-study students, the more extensive practical experience means they already possess advanced professionally oriented competencies. The selected seminars can therefore explore the respective topics in greater depth or focus specifically on components that can be further developed.			
Content			
A three-day block seminar on profession-oriented competencies, in which students work together in teams to complete a given task.			

- The seminar may include workshops, seminars, excursions, and training courses, and - alongside technical tasks - covers topics such as moderation, presentation, conflict management, rhetoric, academic writing, ethics of technological issues, and entrepreneurship.

For dual-study students

- Due to their extensive practical experience, dual-study students have the option to shorten the seminar requirement to a one-day event. This one-day seminar may be selected from offerings provided by the company, the Career Service, or other providers, as long as the content is equivalent to the faculty's offering.
- The minimum duration of the one-day seminar is six hours excluding breaks, and it may also be composed of multiple individual seminars.

Literature

Will be specified at the beginning.

Additional remarks

- The seminar offerings are updated each semester and published together with information on the instructors as well as the specific topics, content, media formats, examination formats, and literature.
- This course generally takes place as a block seminar at the end of each semester.
- It is mandatory to register for the practical seminar as part of the examination registration (winter semester in November / summer semester in May) before attending the block course.

5.2 Foreign Languages

Chinese A1

Module abbreviation	SZ_CHIN_A1	Reg.-Nr.	6
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Foreign Language	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Lei, Meng		
Lecturer(s)	Lei, Meng		
Language of instruction	German	Language of exams	Chinese
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	79 h	
	Total	126 h	
Subjects of the module	Chinese A1		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
LN - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the course, students (without prior knowledge) will be able to • develop an initial understanding of the structure of Chinese writing and language. • recognize and distinguish the four tones of Mandarin Chinese. • read and write basic Chinese characters correctly and form simple sentences with them. • introduce themselves in short sentences and talk about simple topics such as family, food, daily routine, or weather. • recognize basic cultural differences (e.g., in greetings or politeness).			
Content			
• Introducing yourself • Nationality • Telling the time • Going to a restaurant • Shopping • Family • Phrases for using the telephone • Going to the doctor			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

• Leisure activities • Weather
Literature
• ZHU, Xiaoxing, 2011. <i>Chinesisch erleben: Leben in China</i>. Beijing: Higher Education Press. ISBN 978-7-04-019054-0
Additional remarks
No remarks.

English for Business and Engineering 1

Module abbreviation	EnglBusiness1_E	Reg.-Nr.	6
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Foreign Language	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Reicherstorfer, Anja		
Lecturer(s)	Reicherstorfer, Anja		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	English for Business and Engineering 1		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
LN - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
Students are able to: • handle various situations they might encounter in today's business world, including meetings and negotiations. • write effective and accurate business correspondence (enquiry, offer, order). • give a presentation on a current international business topic or a technical innovation and lead a discussion on the topic. • know presentation skills including effective structuring, body language, time management and describing business trends (describing graphs). • use visual aids for effective presentation of statistics and numbers. • develop Business English vocabulary.			
Content			
• Reading and analysis of Business and Engineering texts • Listening skills practice • Writing basic business texts • How to summarize a text • Business & Engineering vocabulary • Group work in role plays and case studies			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

Selected business skills: presentations, meetings, negotiations, etc.
Literature
- DUBICKA, Iwonna, 2019. Business Partner B2+: Coursebook. Hallbergmoos: Pearson Education. ISBN 978-3-86894-814-1, 978-3-86894-813-4 - BONAMY, David, 2011. <i>Technical English 4, Course Book</i>. Pearson. ISBN 9781408229552
Additional remarks
The course contains an online part. Every student must hold a presentation in class.

English for Business and Engineering 3

Module abbreviation	EngBusiness3_EG	Reg.-Nr.	6
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Foreign Language	3
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Reicherstorfer, Anja		
Lecturer(s)	Reicherstorfer, Anja		
Language of instruction	English	Language of exams	English
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	79 h	
	Total	126 h	
Subjects of the module	English for Business and Engineering 3		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
LN - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the seminar students will be able to: - improve business and engineering communication skills – communicate clearly and professionally in various business and engineering contexts. - expand business and technical vocabulary by learning and practicing industry-specific terminology and expressions. - develop writing skills in writing emails, reports, proposals, and other business documents. - enhance listening and speaking skills – improve understanding of spoken English in meetings, presentations, and negotiations. - improve presentation skills – Learn how to prepare and deliver effective business presentations. - achieve personal and professional growth, supporting their career development through improved language proficiency.			
Content			
- CV and application form - Most common job interview questions - How to write an argumentative essay - Product design specification document - Product recall notice			

• Enquiry • Offer • Orders • Letter of complaint • Negotiation skills
Literature
• BONAMY, David, 2011. <i>Technical English 4, Course Book</i>. Pearson. ISBN 9781408229552
Additional remarks
No remarks.

French A1

Module abbreviation	SZ_FRANZ_A1	Reg.-Nr.	6
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Foreign Language	1
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Abdallah, Zahra		
Lecturer(s)	Abdallah, Zahra		
Language of instruction	German	Language of exams	French
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	79 h	
	Total	126 h	
Subjects of the module	French A1		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
LN - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending this course, students should be able to • hold simple conversations, for example, introduce themselves, ask for directions, or talk about a hobby. • expand their vocabulary for everyday situations, such as family, food, shopping, and leisure. • form and understand simple sentences, especially short, clear statements. • know the most important grammar rules, such as the use of the present tense, personal pronouns, and how to ask simple questions. • read and understand short texts, such as simple advertisements or emails. • write simple texts themselves, such as a short message or a postcard.			
Content			
• Greetings and Introductions (name, age, origin/background), Farewells (Bonjour, Salut, Au revoir), polite expressions (please, thank you, excuse me/sorry) • People and family (naming family members, talking about oneself and others) • Numbers and dates (numbers from 0 to 100, days of the week, months, seasons, dates and time) • Everyday situations (shopping, ordering in a restaurant, giving and asking for directions) • Food and drinks (naming food and beverages, talking about preferences) • Leisure time and hobbies (talking about leisure activities, forming simple sentences about hobbies)			

- Basic grammar: the present tense of the most important verbs (*être, avoir, aller, faire*), personal pronouns, simple questions and negations, articles (*un, une, le, la*)
- Everyday communication (conducting short conversations, reading and writing simple texts such as post-cards and short emails)

Literature

- SCHREITMÜLLER, Fabienne, 2017. Langenscheidt fit in 30 Tagen - Französisch: Niveau A1-A2: der schnelle Sprachkurs mit Buch, 2 Audio-CDs und Audio-Wortschatztrainer auf 1 MP3-CD: Lernkalender mit Tipps vom Coach und Trainingsplan. München; Wien: Langenscheidt. ISBN 978-3-468-28029-0
- GRÉGOIRE, Maïa, 2015. *Grammaire progressive du français: niveau débutant complet; avec 200 exercices*. Paris: CLE International / SEJER. ISBN 978-209-038156-6, 978-3-12-529948-1

Additional remarks

No remarks.

French A2			
Module abbreviation	SZ_FRANZ_A2	Reg.-Nr.	6
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Foreign Language	3
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Abdallah, Zahra		
Lecturer(s)	Abdallah, Zahra		
Language of instruction	French	Language of exams	French
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	French A2		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
LN - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the course, students can - understand short, simple everyday conversations (e.g. about family, hobbies, shopping). - understand short, simple texts (e.g. emails, postcards, advertisements, directions). - conduct short conversations and ask and answer simple questions. - use simple sentence structures and learned expressions. - master the present tense of regular and common irregular verbs, the use of the <i>passé composé</i> and <i>futur proche</i>, personal pronouns, simple relative clauses, and the comparison of adjectives. - use polite expressions and culturally appropriate phrases (e.g. greetings and expressions of thanks).			
Content			
- Passé composé, Imparfait, Futur, Conditionnel, Impératif, Pronoms personnels, déterminants et pronoms équivalents, adverbess, prop. subordonnées, comparatif et superlatif - Organising holidays and travel - Writing letters, including application letters - Work organisation in a company, professional correspondence, telephone conversations, meetings			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

Literature
SCHREITMÜLLER, Fabienne, 2017. Langenscheidt fit in 30 Tagen - Französisch: Niveau A1-A2: der schnelle Sprachkurs mit Buch, 2 Audio-CDs und Audio-Wortschatztrainer auf 1 MP3-CD: Lernkalender mit Tipps vom Coach und Trainingsplan. München; Wien: Langenscheidt. ISBN 978-3-468-28029-0
Additional remarks
No remarks.

German A1 Intensive

Module abbreviation	GermanA1_E	Reg.-Nr.	6
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Foreign Language	1
Module frequency	nur Wintersemester	Module duration	1 Semester
Responsible for module	Donovan, Elke		
Lecturer(s)	Donovan, Elke		
Language of instruction	English	Language of exams	German
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	79 h	
	Total	126 h	
Subjects of the module	German A1 Intensive		
Lecture types	SU/Ü - seminaristischer Unterricht/Übung		
Examinations			
LN - schriftliche Prüfung, 90 Minuten			
Additional explanations regarding examinations			
Keine			
Prerequisites according examination regulation			
Keine			
Recommended prerequisites			
Keine			
Objectives			
Students are able to - understand and use familiar everyday expressions and simple phrases, which relate to the satisfaction of concrete needs - introduce themselves and others, - ask and answer questions about personal details (name, origin, interests, ...) - communicate in a simple manner			
Content			
Acquisition of most fundamental language concepts allowing students to communicate in everyday situations, evaluate situations, communicate wishes and preferences and gain basic communication skills, e.g. - alphabet, numbers and ordinal numbers - pronunciation - word types (nouns, verbs, adjectives, pronouns, prepositions) - tenses (present tense, perfect tense, past tense) - most common regular and irregular verbs, reflexive verbs, modal verbs, separable verbs - negation and questions			

Literature

- KRENN, Wilfried und Herbert PUCHTA, 2015. *Motive Kompaktkurs DaF, Kursbuch, Lektion 1 - 8, Deutsch als Fremdsprache*. München: Hueber. ISBN 978-3-19-001880-2
- KRENN, Wilfried und Herbert PUCHTA, 2015. *Motive Kompaktkurs DaF, Arbeitsbuch, Lektion 1 - 8, Deutsch als Fremdsprache*. München: Hueber. ISBN 978-3-19-031880-3
- FANDRYCH, Christian und Ulrike TALLOWITZ, 2008. *Klipp und klar, Übungsgrammatik Grundstufe Deutsch in 99 Schritten*. Stuttgart: Klett. ISBN 978-3-12-675322-7; 978-3-12-675327-2; 978-3-12-675427-9

Additional remarks

No remarks.

German B1 Intensive

Module abbreviation	GermanB1_EG	Reg.-Nr.	6
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Foreign Language	3
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Nehir, Mehmet		
Lecturer(s)	Nehir, Mehmet		
Language of instruction	German	Language of exams	German
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	78 h	
	Total	125 h	
Subjects of the module	German B1 Intensive		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
LN - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
Students are able to • improve communication skills to deal with everyday situations in Germany. • understand information (weather, family, how to plan your vacation). • express and represent their own opinion. • compare things. • be polite and hand out advice.			
Content			
Acquisition of fundamental language concepts allowing students to express themselves simply and coherently on familiar topics of personal interest (about personal experiences, events, dreams, hopes, objectives): • passive voice • prepositions (local, modal, temporal) • modal verbs, separable verbs, subjunctive II • reflexive verbs (acusative, dative) • past tense (Perfekt, Präteritum) • declination of adjectives, adjectives of degree			

- prefixes
- adverbs
- infinitive clause, reported questions, subordinate clause, relative clause, conjunctions
- pronouns (possessive, demonstrative)
- cases (genitive, dative, accusative)
- reading and listening comprehensions
- role plays

Literature

- KRENN, Wilfried und Herbert PUCHTA, 2015. *Motive B1. Kompaktkurs DaF: Deutsch als Fremdsprache*. München: Hueber Verlag.

Additional remarks

No remarks.

Spanish B1

Module abbreviation	SZ_SPAN_B1	Reg.-Nr.	6
Curriculum	Study Programme	Module type	Semester
	Engineering and Management (SPO WS 26/27)	Foreign Language	
Module frequency	only winter term	Module duration	1 semester
Responsible for module	Antràs Solè, Teresa		
Lecturer(s)	Antràs Solè, Teresa		
Language of instruction	Spanish	Language of exams	Spanish
Credit points / SWS	5 ECTS / 4 SWS		
Workload	Contact hours	47 h	
	Self-study	79 h	
	Total	126 h	
Subjects of the module	Spanish B1		
Lecture types	SU/Ü - lecture with integrated exercises		
Examinations			
LN - written exam, 90 minutes			
Additional explanations regarding examinations			
None			
Prerequisites according examination regulation			
None			
Recommended prerequisites			
None			
Objectives			
After attending the module courses, participants can: • express themselves clearly and coherently about experiences, opinions, and plans. • understand longer texts on every day or professional topics. • report on past events and formulate hypotheses. • participate in discussions both orally and in writing (e.g. in class or online). • produce different types of texts (e.g. emails, reports, and blog posts).			
Content			
• Narrating stories or anecdotes in the past • Cultural differences and social issues • Environment, consumption, and sustainable living • Travel experiences and intercultural communication • Knowledge of interculturality in the workplace • Grammar: <i>Pretérito imperfecto</i>, <i>pretérito indefinido</i>, <i>pluscuamperfecto</i>, and <i>subjunctive</i>; conditional clauses • Temporal and causal connectors			

		Engineering and Management (SPO WS 26/27)
		(Module Handbook SPO WS 26/27, WS 2026/27)

Literature
XICOTA TORT, Núria und Encarnación GUERRERO GARCÍA, 2003. Universo.ele B1 Spanisch für Studierende/Kurs- und Arbeitsbuch plus interaktive Version. München: Hueber Verlag. ISBN 978-3-19-364333-9
Additional remarks
No remarks.

5.3 Electives in Engineering and Management

Starting with winter semester 2024/25, there is a separate module handbook for the descriptions of the elective modules, which is part of the semester curriculum for the bachelor's degree program "Engineering and Management". This can be found on the Moodle page of your degree program under "General Information": <https://moodle.thi.de/course/view.php?id=3804§ion=2>

Note:

Please note that *not all modules* listed in the handbook for electives can be selected for your degree program or specialization. The current list of selectable modules for your degree program or specialization can be found in Moodle under: <https://moodle.thi.de/mod/folder/view.php?id=213758>