



HOCHSCHULE HEILBRONN

**The following text was translated using AI (DeepL)
Only the original German version is binding.**

The following Study and Examination Regulations were reviewed and adopted at the 458th meeting of the Senate on July 25, 2025.

Therefore, only these Study and Examination Regulations are binding!

Prof. Dr. Ulrich Brecht, Vice Rector for
Academic Affairs and Teaching

§ 41 Bachelor's Program in Industrial Engineering (WI-B)

1. Basics of the Program Structure

1.1. Total Scope of the Program

The total scope of the courses required for successful completion of the program comprises a student workload of 210 ECTS credits and amounts to 132 semester-week hours. Upon passing the Bachelor's examination, Heilbronn University confers the academic degree of Bachelor of Engineering, abbreviated B.Eng. (§ 30, Sentence 1, No. 3 AT).

1.2. Program Structure

The courses required for successful completion of the program, along with the associated prerequisites and examinations, are listed in Tables 1 through 4.

The program is divided into the introductory phase (Section 2) and the advanced phase (Section 3).

The courses are assigned to individual modules and are assigned ECTS credits (ECTS-CP).

1.3. Language of Instruction

All courses are taught in German or English (Section 3, Paragraph 5).

2. Courses in the Foundational Phase

The courses and exams for the introductory phase are listed in Table 1.

Table 1: Courses in the introductory phase

Sem.	Course					Exam Requirement		Prerequisite		ECTS-CP
	IT No.	Module No.	Description	Type	Credit Hours	Type	Duration in min.	Type	Duration in min.	
1	226,000	G1	Mathematical Foundations 1							7.5
	226001	G1.1	Mathematics 1	Lecture/P ractice	6	1 LKBK	120			(7.5)
	226005	G2	Fundamentals of Computer Science 1							5
	226006	G2.1	Computer Science 1	Lecture/P ractice	4	1 advanced course	120			(5)
	226010	G3	Fundamentals of Engineering 1							7.5
	226011	G3.1	Physics	Lecture/P ractice	4	1 advanced course	120			(5)
	226012	G3.2	Engineering Mechanics 1	Lecture/P ractice	2	1 advanced course	60			(2.5)
	226015	G4	Fundamentals of Electrical Engineering							5
	226016	G4.1	Electrical Engineering	V	4	1 advanced course	120			(5)
	226020	G5	Fundamentals of Economics							5
	226021	G5.1	General Business Administration	Lecture/P ractice	4	1 advanced course	120			(5)
Total for the 1st semester					24	6 (LK/LKBK)				30
2	226025	G6	Mathematical Foundations 2							5
	226026	G6.1	Mathematics 2	Lecture/P ractice	4	1 LKBK	120			(5)
	226030	G7	Fundamentals of Computer Science 2							5
	226031	G7.1	Computer Science 2	Lecture/P ractice	4	1 advanced course	120			(5)
	226035	G8	Fundamentals of Engineering 2							7.5
	226036	G8.1	Engineering Mechanics 2	Lecture/P ractice	2	1 advanced course	90			(2.5)
	226037	G8.2	Materials Science	Lecture/P ractice	2	1 advanced course	60			(2.5)
	226038	G8.3	Physics Lab	L	2			1 SL		(2.5)
	226040	G9	External Accounting							5
	226041	G9.1	Bookkeeping	Lecture/P ractice	2	1 PK	120			(5)
	226042	G9.2	Accounting	Lecture/P ractice	2					
	226045	G10	Fundamentals of Social Sciences							7.5
	226046	G10.1	Ethics and Scientific Methods	S	2			1 SR		(2.5)
	226047	G10.2	Foreign Language ¹⁾	SP	2	1 LKBK	90			(2.5)
	226048	G10.3	Communication in Organizations	Lecture/P ractice	2			1 SR		(2.5)
Total for the 2nd semester					24	6 (LK/ LKBK/ PK)		3 (SL / SR)		
Total for the foundational studies					48	12		3		30

¹⁾ Students have the option of taking a foreign language other than English. To do so, students must provide proof to the relevant examination committee that their English proficiency meets Level B1 of the "Common European Framework of Reference for Languages" of the Council of Europe. If this proof cannot be provided, students must take English as their foreign language. The other foreign language must have a workload of at least 2.5 ECTS credits and must be selected from the university's foreign language offerings.

3. Courses in the Advanced Study Phase

The courses and exams for the advanced study phase are listed in Table 2.1, Table 2.2, and Table 3. A retake exam is offered in the following semester (§ 14 (3), sentence 1 AT).

Table 2.1: Courses in the main phase of study for students beginning their studies in the winter semester

Sem.	Course					Exam Requirement		Prerequisite		ECTS-CP
	IT No.	Module No.	Title	Type	Credit Hours	Type	Duration in min.	Type	Duration in min.	
3	226100	H1	Electronics and Measurement Technology							7.5
	226101	H1.1	Electronic Components and Circuits	Lecture/Lab	2	1 course	90			(2.5)
	226102	H1.2	Measurement Technology	Lecture/Lab	2	1 course	120			(2.5)
	226103	H1.3	Measurement Technology Lab	L	2			1 SL		(2.5)
	226105	H2	Computer-Aided Design							5
	226106	H2.1	Design	Lecture/Lab	2	1 course	90			(2.5)
	226107	H2.2	CAD	L	2	1 unit				(2.5)
	226110	H3	Manufacturing Engineering and Automation							7.5
	226111	H3.1	Manufacturing Techniques	Lecture/Lab	2	1 course	60			(2.5)
	226112	H3.2	Manufacturing Technologies Lab	L	2			1 SL		(2.5)
	226113	H3.3	Fundamentals of Automation	L	2	1 course	60			(2.5)
	226115	H4	Internal Accounting							5
	226116	H4.1	Cost and Activity Accounting	Lecture/Lab	4	1 course	120			(5)
	226120	H5	Market Design Methods							5
	226121	H5.1	Marketing	Lecture/Lab	4	1 course	90			(5)
Total for the 3rd semester					24	8 (LE/LK)		2 (SL)		30
4	226,125	H6	Engineering Systems and Materials							7.5
	226126	H6.1	Sensor Systems	Lecture/Lab	2	1 course	90			(2.5)
	226127	H6.2	Laboratory Automation and PLC Systems	L	2			1 SL		(2.5)
	226128	H6.3	Materials Laboratory	L	2			1 SL		(2.5)
	226130	H7	Investment and Financing							5
	226131	H7.1	Investment	Lecture/Lab	2	1 PK	120			(5)
	226132	H7.2	Financing	Lecture/Lab	2					
	226135	H8	Production Management							5
	226136	H8.1	Production Management 1	Lecture/Lab	4	1 course	120			(5)
	226140	H9	Analysis of Empirical Data							5
	226141	H9.1	Statistics	Lecture/Lab	4	1 course	120			(5)
	226145	H10	Project Management and Rhetoric							7.5
	226146	H10.1	Project Management	Lecture/Lab	2	1 course	90			(2.5)
	226147	H10.2	Rhetoric and Presentation Skills	Ü	2	1 PR				(5)
	226148	H10.3	Practical Business Studies	S	2					
Total for the 4th semester					24	6 (LK/ PK/ PR)		2 (SL)		30

Table 2.2: Courses in the Advanced Study Phase for Students Beginning Their Studies in the Summer Semester

Sem.	Course					Exam Requirement		Prerequisite		ECTS-CP
	IT No.	Module No.	Title	Type	Credit Hours	Type	Duration in min.	Type	Duration in min.	
3	226125	H6	Technical Systems and Materials							7.5
	226126	H6.1	Sensor Systems	V/Ü	2	1 course	90			(2.5)
	226127	H6.2	Laboratory Automation and PLC Systems	L	2			1 SL		(2.5)
	226128	H6.3	Materials Laboratory	L	2			1 SL		(2.5)
	226130	H7	Investment and Financing							5
	226131	H7.1	Investment	V/Ü	2	1 PK	120			(5)
	226132	H7.2	Financing	V/Ü	2					
	226135	H8	Production Management							5
	226136	H8.1	Production Management 1	V/Ü	4	1 course	120			(5)
	226140	H9	Analysis of Empirical Data							5
	226141	H9.1	Statistics	V/Ü	4	1 course	120			(5)
	226145	H10	Project Management and Rhetoric							7.5
	226146	H10.1	Project Management	V/Ü	2	1 course	90			(2.5)
	226147	H10.2	Rhetoric and Presentation Skills	Ü	2	1 PR				(5)
	226148	H10.3	Practical Business Studies	S	2					
Total for the 3rd semester					24	6 (LK/ PK/ PR)		2 (SL)		30
4	226,100	H1	Electronics and Measurement Technology							7.5
	226101	H1.1	Electronic Components and Circuits	V/Ü	2	1 course	90			(2.5)
	226102	H1.2	Measurement Technology	V/Ü	2	1 course	120			(2.5)
	226103	H1.3	Measurement Technology Lab	L	2			1 SL		(2.5)
	226105	H2	Computer-Aided Design							5
	226106	H2.1	Design	V/Ü	2	1 course	90			(2.5)
	226107	H2.2	CAD	L	2	1 unit				(2.5)
	226110	H3	Manufacturing Engineering and Automation							7.5
	226111	H3.1	Manufacturing Techniques	V/Ü	2	1 course	60			(2.5)
	226112	H3.2	Manufacturing Technologies Lab	L	2			1 SL		(2.5)
	226113	H3.3	Fundamentals of Automation	L	2	1 course	60			(2.5)
	226115	H4	Internal Accounting							5
	226116	H4.1	Cost and Activity Accounting	V/Ü	4	1 course	120			(5)
	226,120	H5	Market Design Methods							5
	226121	H5.1	Marketing	V/Ü	4	1 course	90			(5)
Total for the 4th semester					24	8 (LE/LK)		2 (SL)		30

Table 3: Courses in the Advanced Studies Phase

Sem.	Course					Exam Requirement		Prerequisite		ECTS-CP
	IT No.	Module No.	Description	Type	Scope in SWS	Type	Duration in min.	Type	Duration in min.	
5	226,150	P	Practical study semester							30
	226151	P.1	Practical Study Semester and Colloquium					1 SR		(30)
Total for the 5th semester								2 (SR)		30
6	226155	H11	Control and Regulation Technology							7.5
	226156	H11.1	Control Engineering	Lecture/Lab	2	1 credit	120			(5)
	226157	H11.2	Control Engineering	Lecture/Lab	2					
	226158	H11.3	Laboratory Applications	L	2	1 unit				(2.5)
	226160	H12	Purchasing and Sales Management 1							5
	226161	H12.1	Technical Purchasing and Sales Management 1	Lecture/Lab	4	1 LK	120			(5)
	226165	H13	Accounting							5
	226166	H13.1	International Accounting and Business Analysis	Lecture/Lab	2	1 LK	90			(2.5)
	226167	H13.2	Management Accounting	Lecture/Lab	2	1 LK	90			(2.5)
	226170	H14	Production Management Specialization							5
	226171	H14.1	Production Management 2	Lecture/Lab	4	1 LK	120			(5)
	226175	H15	Elective Area ²⁾		4	1 PA/PR or 1 PR				5.0
	226180	H16	General Engineering Studies Courses							2.5
	226181	H16.1	Current Topics ³⁾	³⁾	³⁾	³⁾	³⁾			(2.5)
Total for the 6th semester					22	7 (LE/LK/ PA/ PK/ PR)				30
7	226185	H17	Purchasing and Sales Management 2							5
	226186	H17.1	Technical Purchasing and Sales Management 2	Lecture/Lab	4	1 LK	120			(5)
	226190	H18	Business Management							5
	226191	H18.1	Strategic Business Planning	Lecture/Lab	4	1 LK	120			(5)
	226195	H19	Integrative Project Work							7
	226196	H19.1	Integrative Project Lab	L	4	1 LA				(7)
	226400	BT	Final Exam							13
	226401	BT.1	Bachelor's Thesis		2	1 PB				(12)
	226402	BT.2	Oral Bachelor's Exam			1 PM	30			(1)
Total for the 7th semester					14	5 (LA/ LK/ PB/ PM)				30
Total for advanced studies					84	24 (LA/ LK/ LL/ LR/ LK BK/ PA/ PB/ PK/ PM/ PR)		4 (SL/ SR)		150
Total for the entire program					132					210

²⁾ For the definition of course types and examination requirements, see 4. Elective-Compulsory Area.

³⁾ For the definition of the course type and the examination requirement, see 6.6 Requirements for the Examination in Module H16 General Engineering Studies.

4. Elective-Compulsory Area

To fulfill the "Elective" course requirement in the sixth semester, students must select a course worth 5 ECTS credits from Table 4.

Table 4: Courses in the Elective-Compulsory Area

Sem.	Course					Course Requirement		Prerequisite		ECTS-CP
	IT No.	Module No.	Title	Type	Credit Hours	Type	Duration in min.	Type	Duration in min.	
6	226175	H15	Elective							5.0
	226176	H15.1	Engineering Specialization	L	4	1 PA/PR				(5.0)
	226177	H15.2	Advanced Business Administration	S	4	1 PR				(5.0)
Total Elective Requirements					4	1 (PA/PR)				5.0

5. Prerequisite Exams and Course Exams in the Undergraduate Program

5.1. Module Exams in the Undergraduate Program

The module exams for the preliminary bachelor's exam, the prerequisites and exam performance, as well as the weightings of the grades for individual exam performances and module grades, are shown in Table 5.

Table 5: Module Exams in the Undergraduate Program

Exam		Prerequisite		Weight of the Exam Grade performance	Weight of the module grade toward the grade under § 22
No.	Description	No.	Description		
Module Exam: Mathematical Foundations 1 (Module G1)					
226001	G1.1 Mathematics 1			1	7.5
Module Exam: Fundamentals of Computer Science (Module G2)					
226006	G2.1 Computer Science 1			1	5
Module Exam: Fundamentals of Engineering 1 (Module G3)					
226011	G3.1 Physics			5	7.5
226012	G3.2 Engineering Mechanics 1			2.5	
Module Exam: Fundamentals of Electrical Engineering (Module G4)					
226016	G4.1 Electrical Engineering			1	5
Module Exam: Fundamentals of Economics (Module G5)					
226021	G5.1 General Business Administration			1	5
Module Exam: Mathematical Foundations 2 (Module G6)					
226026	G6.1 Mathematics 2			1	5
Module Exam: Fundamentals of Computer Science 2 (Module G7)					
226031	G7.1 Computer Science 2			1	5
Module Exam: Fundamentals of Engineering 2 (Module G8)					
226036	G8.1 Engineering Mechanics 2			1	7.5
226037	G8.2 Materials Science			1	
		226038	G8.3 Physics Lab		
Module Exam: External Accounting (Module G9)					
226040	G9.1 Bookkeeping				5
	G9.2 Financial Reporting				
Module Exam: Fundamentals of Social Sciences (Module G10)					
		226046	G10.1 Ethics and Academic Research		3
226047	G10.2 Foreign Language			1	
		226048	G10.3 Business Communication		
Total for Undergraduate Studies					55

5.2. Exams That Cannot Be Made Up

The module exam in the undergraduate program (Module G3 "Fundamentals of Engineering 1") is considered passed only if the course requirements for "Physics" and "Technical Mechanics 1" have been met.

The module exam in the undergraduate program (Module 8 "Fundamentals of Engineering 2") is considered passed only if the prerequisite exam "Physics Lab" has also been passed.

The module exam in the introductory phase (Module 10 "Fundamentals of Social Sciences") is considered passed only if the prerequisite exam "Ethics and Scientific Work" has also

has also been passed.

5.3. Prerequisite Exams and Exam Results for the Bachelor's Preliminary Exam

The certificate confirming successful completion of the Bachelor's preliminary examination includes the module grades for all module exams listed in Table 5. The module grade for the module exam is the weighted arithmetic mean of the grades for the module's examination components. Within a module, grades are weighted according to the weights listed in Table 5. The overall grade for the Bachelor's preliminary examination is calculated as the weighted arithmetic mean of the module grades, with the weights for the individual grades specified in Table 5 (right column). The prerequisite coursework for the undergraduate program must have been completed by the time the certificate of passing the Bachelor's preliminary examination is issued in accordance with § 22.

6. Prerequisite Coursework and Examinations in the Advanced Stage of Study

6.1. Module Exams in the Advanced Studies Phase

Table 6 lists the module exams for the bachelor's degree, the prerequisite coursework and exam requirements, as well as the weightings of the grades for individual exam performances, module grades, and the bachelor's thesis.

Table 6: Module Exams in the Advanced Studies Phase

Exam		Prerequisite		Weight of the exam performance grade	Weight of the module grade/Bachelor's thesis toward the grade pursuant to § 29
No.	Description	No.	Description		
Module Exam in Electronics and Measurement Technology (Module H1)					
226101	H1.1 Electronic Components and Circuits			1	7.5
226102	H1.2 Measurement Technology			2	
		226103	H1.3 Laboratory Measurement Technology		
Module Exam: Computer-Aided Design (Module H2)					
226106	H2.1 Design			1	5
226107	H2.2 CAD			1	
Module Exam in Manufacturing Technology and Automation (Module H3)					
226111	H3.1 Manufacturing Technologies			1	7.5
		226112	H3.2 Manufacturing Technologies Lab		
226113	H3.3 Fundamentals of Automation			1	
Module Exam: Internal Accounting (Module H4)					
226116	H4.1 Cost and Performance Accounting			1	5
Module Exam: Market Design Methods (Module H5)					
226121	H 5.1 Marketing			1	5
Module Exam: Technical Systems and Materials (Module H6)					
226126	H6.1 Sensor Systems			1	7.5
		226127	H6.2 Laboratory Automation and PLC Systems		
		226128	H6.3 Materials Laboratory		
Module Exam: Investment and Financing (Module H7)					
226130	H7.1 Investment			1	5
	H7.2 Financing				
Module Exam in Production Management (Module H8)					
226136	H8.1 Production Management 1			1	5
Module Exam: Analysis of Empirical Data (Module H9)					
226141	H9.1 Statistics			1	5
Module Exam: Project Competence and Rhetoric (Module H10)					
226146	H10.1 Project Management			1	7.5
226145	H10.2 Rhetoric and Presentation Skills			2	
	H10.3 Practical Business Studies				

Table 6: Module Exams in the Advanced Studies Phase (Continued)

Exam Requirement		Prerequisite for the Exam		Weight of the exam grade	Weight of the module grade / the bachelor's thesis toward the final grade pursuant to § 29
No.	Description	No.	Description		
Practical Study Semester (Module P)					
		226151	P1.1 Practical Study Semester and Colloquium		-
Module Exam in Control and Regulation Technology (Module H11)					
226156	H11.1 Control Engineering			1	7.5
226157	H11.2 Control Engineering			1	
226158	H11.3 Laboratory Applications			1	
Module Exam: Purchasing and Sales Management 1 (Module H12)					
226160	H12.1 Technical Purchasing and Sales Management 1			1	5
Module Exam: Accounting (Module H13)					
226166	H13.1 International Accounting and Business Analysis			1	5
226167	H13.2 Management Accounting			1	
Module Exam: Advanced Production Management (Module H14)					
226171	H14.1 Production Management 2			1	5
Advanced Module Exam (Module H15)					
226176	H15.1 Examination for the Selected Submodule			1	5
Module Exam: General Engineering Studies (Module H16)					
226181	H16.1 Course performance for the selected course			1	2.5
Module Exam: Purchasing and Sales Management 2 (Module H17)					
226186	H17.1 Technical Purchasing and Sales Management 2			1	5
Module Exam: Business Management (Module H18)					
226191	H18.1 Strategic Business Planning			1	5
Module Exam: Integrative Project Work (Module H19)					
226196	H19.1 Integrative Project Lab			1	7
Module Exam: Final Exam (Module BT)					
226401	BT.1 Bachelor's Thesis			2	13
226402	BT.2 Oral Bachelor's Exam			1	
Total for the Advanced Studies Phase					120

6.2. Exams That Cannot Be Made Up

The module exam in the advanced studies phase (Module H3 "Manufacturing Technology and Automation") is considered passed only if the prerequisite exam "Manufacturing Technologies Lab" has been passed.

The module exam in the advanced studies phase (Module H6 "Technical Systems and Materials") is considered passed only if the prerequisite exams "Laboratory: Automation and PLC Systems" and "Laboratory: Materials" have each been passed.

The module exam in the advanced studies phase (Module BT "Final Exam") is considered passed only if all required prerequisite exams have been passed.

6.3. Practical Study Semester and Internship Colloquium

The practical study semester is designed to apply and deepen the knowledge and skills acquired during the program by working on appropriate projects.

Professional experience is to be gained through working on projects as independently and autonomously as possible under real-world conditions. This includes, in particular, economic, environmental, safety, and ethical aspects.

Participation in the internship colloquia is mandatory for the evaluation of the practical reports and the proof of activities (§ 4, para. 4), analogous to § 13a.

6.4. Special Provisions for “PLUS Study Models” During the Term of the Agreement Between the Partner Company and the Student

Students who have chosen one of the study models from the “StudiumPLUS” program are required to complete additional practical components at their partner company during periods when classes are not in session, excluding exam periods, provided that time is not used for statutory vacation leave. The content of these practical components must be agreed upon between the partner company and the university.

6.5. Examination Requirements

Exam requirements for the practical study semester and the bachelor's thesis are listed in Table 7.

Table 7: Examination Requirements

Module Exam or Exam Performance		Examination Requirement	
No.	Description	No.	Description
226151	P.1 Practical Study Semester and Colloquium		Passed Bachelor's Preliminary Exam
226401	BT.1 Bachelor's Thesis	226150	P Practical Study Semester and Internship Colloquium

6.6. Requirements for the H16 General Engineering Studies module

The examination requirement for Module H16 General Engineering Studies is fulfilled by participating in curricular courses in the Engineering Sciences subject group during the advanced studies phase at the Faculties of Technology and Economics or Technology, with a workload of at least 2.5 ECTS credits. The relevant examination committee decides on recognition.

6.7. Prerequisite Coursework and Examination Requirements for the Bachelor's Degree

The bachelor's degree transcript includes the module grades for all module exams listed in Table 7, including the grade for the bachelor's thesis. The module grade for a module exam is the weighted arithmetic mean of the grades for the module's examination components. Within a module, grades are weighted according to the weights listed in Table 6. The overall grade on the Bachelor's degree certificate is calculated as the weighted arithmetic mean of the module grades, with the weights for the individual grades specified in Table 6 (right column). The prerequisite coursework for the main phase of study must have been completed by the time the Bachelor's degree certificate is issued in accordance with § 29, unless otherwise specified in Section 6.5, "Examination Prerequisites."

6.8. Oral Bachelor's Examination

The oral Bachelor's examination is a colloquium on the thesis. During the oral Bachelor's examination, the thesis is presented and defended. Its purpose is to determine whether the student is capable of orally presenting the results of the thesis, its subject-specific and methodological foundations, its interdisciplinary connections, and its extradisciplinary references; of justifying them independently; and of assessing their significance for practical application. The additional provisions of § 9 apply accordingly, unless otherwise specified here.

The oral Bachelor's examination is conducted immediately following the completion of the evaluation process for the Bachelor's thesis by the supervising professor of the Bachelor's thesis at Heilbronn University (§ 27, sentence 5) and a second examiner (§ 9, para. 2). Notwithstanding § 8(1), first sentence, the oral bachelor's examination is not bound by the examination period defined in the university's academic calendar.

It is an in-person individual examination and generally lasts 30 minutes. The examination must strike a balanced ratio between the student's presentation and the examination questions to be answered. If the thesis was jointly prepared by several students, the oral Bachelor's examination may also be conducted jointly. The duration of the examination must be extended accordingly to ensure a clearly distinguishable and individual assessment.

7. Effective Date and Transitional Provisions

These Study and Examination Regulations (SPO No. 6) shall enter into force on March 1, 2026. Students who have already begun their studies at the time these Study and Examination Regulations (SPO No. 6) enter into force may apply once to transfer to the new SPO for Industrial Engineering (SPO No. 6). The transfer of credits from the previous SPO (SPO No. 5) is governed by the equivalency list adopted by the responsible examination board no later than December 31, 2025. This application must be submitted in writing and be irrevocable, and must be received by the responsible examination board no later than March 1, 2026.

Heilbronn, July 25, 2025 Signed:

Prof. Dr.-Ing. Oliver Lenzen
Rector

The Study and Examination Regulations are hereby publicly announced in accordance with the Heilbronn University of Applied Sciences' Statutes on Public Announcements dated June 28, 2017.

Heilbronn, July 25, 2025

On behalf of the Office of the Vice Rector for Academic Affairs and Teaching

Signed:

Prof. Dr. Ulrich Brecht