HOCHSCHULE HEILBRONN

Bachelor's degree programme: Environmental and Process Engineering (UP-B)

The following study and examination regulations (in German “SPO”) were verified and approved by the Senate at its 454th meeting on 30 April 2025.

Only the German version of this document is legally binding!

Prof. Dr. Ulrich Brecht
Vice-Chancellor for Learning and Teaching

§ 44a

Bachelor's programme
Environmental and Process Engineering (UP-B)

1 Basics of the programme structure

1.1 Total scope

The total scope of the compulsory and compulsory elective courses required for successful completion of the programme is **132** semester hours per week and leads to the acquisition of **210** ECTS credits.

1.2 Structure of the programme

The compulsory courses required for successful completion of the programme and the associated examinations and preliminary examination requirements are listed in Tables 2.1 and 2.3 and Table 3. The courses are assigned to individual modules, which are awarded ECTS credits.

1.3 Language of instruction

All courses are held in either German or English (§3 (5), SPO AT Bachelor 7sem).

1.4 Basic studies in German or English

Depending on admission, the basic studies must be completed in either German or English.

1.5 Continuation of main studies after basic studies in English

After successfully completing the English-language foundation course and continuing the main course in German, academic counselling is required.

2 Foundation course

2.1 Foundation studies in German

2.1.1 Subjects in German

The courses in the basic studies are listed in Table 2.1.

Table 2.1: Basic studies in German[1]

Semester	Course					Examination		Prerequisite		ECTS
	Module	No	Course title	Type	SWS	Type	Duration	Type	Duration	
1	G1	**606010**	**Mathematics 1**			LK	90			
		606011	Mathematics 1	V/Ü	4	Module examination				5
	G3	**606030**	**Computer Science**			LA				
		606031	Computer Science	V/Ü	4	Module examination				5
	G4	**606040**	**Physics**			LK	90			
		606041	Physics	V/Ü	4	Module examination				5
	G5	**606050**	**Chemistry**			LP				
		606051	Chemistry	V/Ü	4	Module examination				5
	G7	**606070**	**Materials**			LK	90			
		606071	Materials	V/Ü	4	Module examination				5
	G11	**606110**	**Sustainability**							
		606111	Sustainability Live	V/Ü	2	LK	60			2.5
		606112	Sustainability Project Week	S	2	LA				2.5
Total 1st semester					**24**	**7**		**0**		**30**
2	G2	**606020**	**Mathematics 2**			LK	90			
		606021	Mathematics 2	V/Ü	4	Module examination				5
	G6	**606060**	**Thermodynamics & Energy**			LP				
		606061	Thermodynamics & Energy	V/Ü	4	Module examination				5
	G8	**606080**	**Electrical Engineering**			LK	90			
		606081	Electrical Engineering	V/Ü	4	Module examination				5
	G9	**606090**	**Fundamentals of Design & CAD**			LKBK	120			
		606091	Fundamentals of Design Engineering & CAD	V/Ü	4	Module examination				5
	G10	**606100**	**Technical Mechanics**			LP				
		606101	Technical Mechanics	V/Ü	4	Module examination				5
	G12	**606120**	**Environmental processes**			LP				
		606121	Environmental processes	V/Ü	4	Module examination				5
Total 2nd semester					**24**	**6**		**0**		**30**

[1] See https://cdn.hs-heilbronn.de/ff7396326d75e064/21b0725bd705/2014-05-04-SPO-AT-Bachelor_ENGLISCH.pdf page 26 for abbreviations

2.1.2 Module examinations of the German basic studies

The module examinations for the basic studies are shown in Table 2.2:

Table 2.2: Module examinations for the preliminary Bachelor's examination, Weighting of individual examination results and module grades

Module grades for the basic study programme: Environmental and Process Engineering (UP)					
Module	**No.**	**Module name**			**Weighting of the module grade for the grade according to § 22**
		Examination	**No**	**Prerequisite**	
Mathematics & Computer Science					
G1	**606010**	**Mathematics 1**			**5**
	606011	Mathematics 1			
G2	**606020**	**Mathematics 2**			**5**
	606021	Mathematics 2			
G3	**606030**	**Computer Science**			**5**
	606031	Computer Science			
Natural Sciences					
G4	**606040**	**Physics**			**5**
	606041	Physics			
G5	**606050**	**Chemistry**			**5**
	606051	Chemistry			
G6	**606060**	**Thermodynamics & Energy**			**5**
	606061	Thermodynamics & Energy			
Technology					
G7	**606070**	**Materials**			**5**
	606071	Materials			
G8	**606080**	**Electrical engineering**			**5**
	606081	Electrical Engineering			
G9	**606090**	**Fundamentals of Design Engineering & CAD**			**5**
	606091	Fundamentals of Design Engineering & CAD			
G10	**606100**	**Technical Mechanics**			**5**
	606101	Technical Mechanics			
Sustainability					
G11	**606110**	**Sustainability**			**5**
	606111	Sustainability Live			
	606112	Sustainability Project Week			
G12	**606120**	**Environmental Processes**			**5**
	606121	Environmental processes			
Total					**60**

2.2 Basic studies in English

2.2.1 Subjects in English

Table 2.3: Basic studies in English

Semester	Course					Examination		Prerequisite		ECTS
	Module	No	Course title	Type	SWS	Type	Duration	Type	Duration	
1	G1	**606510**	**Mathematics 1**			LK	90			
		606511	Mathematics 1	L/T	6	Module examination				5
	G3	**606530**	**Physics**			LKBK	90			
		606531	Physics	V/Ü	4	Module examination				5
	G4	**606540**	**Electrical Engineering and Electronics 1**			LK	90			
		606541	Electrical Engineering and Electronics 1	V/Ü	4	Module examination				5
	G6	**606560**	**Programming 1**			LK	90			
		606561	Programming 1	V/L	4	Module examination				5
	G8	**606580**	**Engineering Mechanics 1**			LK	60			
		606581	Engineering Mechanics 1	Lecture /Tutorial	4	Module examination				5
	G11	**606610**	**German Language and Academic Skills 1** [1)]			LP				
		606611	German Language and Academic Skills 1	V/S	4	Module examination				5
Total 1st semester					**26**	**6**		**0**		**30**

2	G2	**606520**	**Mathematics 2**			LK	120			
		606521	Mathematics 2	V/Ü	4	Module examination				5
	G5	**606550**	**Electrical Engineering and Electronics 2**							
		606551	Electrical Engineering and Electronics 2	V/Ü	2	LK	90			2.5
		606552	Lab Electrical Engineering	L/S	2			SL		2.5
	G7	**606570**	**Programming 2**			LK	120			
		606571	Programming 2	V/L	4	Module examination				5
	G9	**606590**	**Engineering Mechanics 2 and 3**			PK	120			
		606591	Engineering Mechanics 2	L/P	2	Module examination				2.5
		606592	Engineering Mechanics 3	V/Ü	2	Module examination				2.5
	G10	**606600**	**Materials**			PK	90			
		606601	Materials: Plastics	V/Ü	2	Module examination				2.5
		606602	Materials: Metals	V/Ü	2	Module examination				2.5
	G12	**606620**	**German Language and Academic Skills 2** [2)]			LP				
		606621	German Language and Academic Skills 2	V/S	4	Module examination				5
Total 2nd semester					**24**	**6**		**1**		**30**

[1)] *606610 German Language and Academic Skills 1*: Written and oral knowledge of German at level B1, proven by a written examination (with an oral part if necessary), e.g. telc B1, Goethe Zertifikat B1, DSD I or equivalent

[2)] *606620 German Language and Academic Skills 2*: Written and oral knowledge of German at level B2, proven by a written examination (with an oral part if necessary), e.g. telc B2, Goethe Zertifikat B2, DSD II, TestDaF 3, DSH 1 or equivalent; see also point 3.5

2.2.2 Module examinations in the basic English course

Table 2.4: Module examinations for the Bachelor's preliminary examination, Weighting of individual examination results and module grades

Module grades for basic studies in English: Environmental and Process Engineering (UP)					
Module	**No**	**Module name**			**Weighting of the module grade for the grade according to § 22**
		Examination	**No**	**Prerequisite**	
Mathematics and Physics					
G1	**606510**	**Mathematics 1**			**5**
	606511	Mathematics 1			
G2	**606520**	**Mathematics 2**			**5**
	606521	Mathematics 2			
G3	**606530**	**Physics**			**5**
	606531	Physics			
Electrical Engineering					
G4	**606540**	**Electrical Engineering and Electronics 1**			**5**
	606541	Electrical Engineering and Electronics 1			
G5	**606550**	**Electrical Engineering and Electronics 2**			**5**
	606551	Electrical Engineering and Electronics 2			
			606552	Electrical Engineering Laboratory	
Programming					
G6	**606560**	**Programming 1**			**5**
	606561	Programming 1			
G7	**606570**	**Programming 2**			**5**
	606571	Programming 2			
Engineering Mechanics					
G8	**606580**	**Engineering Mechanics 1**			**5**
	606581	Engineering Mechanics 1			
G9	**606590**	**Engineering Mechanics 2 and 3**			**5**
	606591	Engineering Mechanics 2			
	606592	Engineering Mechanics 3			
G10	**606600**	**Materials**			**5**
	606601	Materials: Plastics			
	606602	Materials: Metals			
German and Academic Skills					
G11	**606610**	**German Language and Academic Skills 1**			**5**
	606611	German Language and Academic Skills 1			
G12	**606620**	**German Language and Academic Skills 2**			**5**
	606621	German Language and Academic Skills 2			
Total					**60**

2.2.3 Admission requirements

To participate in 606550 *Electrical Engineering and Electronics 2,* 606540 *Electrical Engineering and Electronics 1* must have been passed.

2.3 Bachelor's preliminary examination

The preliminary Bachelor's examination for the German and English foundation courses includes the module grades for all modules listed in Table 2.2 (German) and Table 2.4 (English). If several performance assessments take place at course level within a module, the module grade is determined according to an ECTS-weighted arithmetic mean of the individual performances included in the module. The overall grade for the preliminary Bachelor's examination is calculated from the weighted arithmetic mean of the module grades, with the weights for the individual grades being determined on the basis of the ECTS from Table 2.2 (German) or Table 2.4 (English).

3 Main studies

3.1 Subjects

Table 3: Subjects of the main study period

Semester	Course					Examination		Prerequisite		ECTS
	Module	No	Course title	Type	SWS	Type	Duration	Type	Duration	
3	H1	**606210**	**Thermal Process Engineering**			LK	120			
		606211	Thermal Process Engineering	V/Ü	4	Module examination				5
	H2	**606220**	**Heat and mass transfer**			LP				
		606221	Heat and Mass Transfer with Laboratory	V/Ü/L	4	Module examination				5
	H7	**606270**	**Control engineering**							
		606271	Control engineering	V/Ü	4	LK	90			5
		606272	Digitalisation laboratory	L	2			SL		2.5
	H8	**606280**	**Process Measurement Technology & Applied Mathematics**							
		606281	Process Measurement Technology	V/Ü	2	LK	60			2.5
		606282	Applied Mathematics	V/Ü	2	LA				2.5
	H9	**606290**	**Environmental and process analysis**							
		606291	Environmental and Process Analysis	V/Ü	4	LK	120			5
		606292	Environmental laboratory	L	2			SL		2.5
Total 3rd semester					**24**	**6**		**2**		**30**

4	H3	**606230**	**Mechanical Process Engineering**							
		606231	Mechanical Process Engineering	V/Ü	4	LK	120			5
		606232	Laboratory Process Engineering	L	2			SL		2.5
	H4	**606240**	**Chemical reaction engineering**							
		606241	Chemical reaction engineering	V/Ü	4	LK	120			5
		606242	Chemistry & Analytics Laboratory	L	2			SL		2.5
	H5	**606250**	**Fluid mechanics**			LK	120			
		606251	Fluid mechanics	V/Ü	4	Module examination				5
	H10	**606300**	**Industrial Ecology**			LP				
		606301	Industrial Ecology	V/Ü	4	Module examination				5

	H11	**606310**	**Project and Innovation Management**			LK	90				
		606311	Project and Innovation Management	V/Ü	4	Module examination					5
Total 4th semester					**24**	**5**		**2**			**30**

5	**H13**	**606330**	**Practical study semester**								
		606331	Supervised practical phase		0			SA			26
		606332	Colloquiums	S	2			SR			4
Total 5th semester					**2**	**0**		**2**			**30**

6	**H6**	**606260**	**Apparatus engineering**			LK	90				
		606261	Apparatus engineering	V/Ü	4	Module examination					5
	H12	**606320**	**Sustainable Processes Project**			LP					
		606321	Sustainable Processes Project	PS	12	Module examination					15
	H14	**606340**	**Specialisation 1**								
			Elective subject(s) in accordance with section 3.2	Lectures/ Tutorials/ Labs	4	Lx					5
	H15	**606350**	**Specialisation 2**								
			Elective subject(s) in accordance with section 3.2	Lectures/ Tutorials/ Labs	4	Lx					5
Totals 6th semester					**24**	**4**		**0**			**30**

7	**H16**	**606360**	**Specialisation 3**								
			Elective subject(s) in accordance with section 3.2	Lectures/ Tutorials/ Labs	4	Lx					5
	H17	**606370**	**Specialisation 4**								
			Elective subject(s) in accordance with section 3.2	Lectures/ Tutorials/ Labs	4	Lx					5
	H18	**606380**	**Specialist deepening 5**								
			Elective subject(s) in accordance with section 3.2	V/Ü/L	4	Lx					5
	H19	**606390**	**Bachelor's thesis**								
		606391	Project Planning & Colloquium	S	1	PA					3
		606392	Bachelor's thesis	PB	10	PB					12
Totals 7th semester					**23**	**5**		**0**			**30**

3.2 Electives

To fulfil the **examination requirements for "Specialisation 1-5"**, students select technical elective subjects totalling 25 ECTS from the WF catalogue. The combination of elective subjects is optional. When selecting elective subjects, it is recommended that students take advantage of the study programme counselling offered each semester. If possible based on the individual course of study, elective subjects can also be taken in the 3rd and 4th semesters.

The courses from the WF catalogue are intended to enable students to deepen their studies. Students can choose specialisations here by successfully completing the elective courses assigned to the respective specialisation. The assignment of each elective to one or more specialisations is indicated in the WF catalogue and in the module handbook. Selected specialisations can be shown on the certificate.

The WF catalogue is part of the module handbook and is available on the programme's homepage and the university's official digital learning platform by the end of the previous semester at the latest. Subjects from another programme at Heilbronn University or another university can be recognised upon request. Participation in compulsory elective subjects may be limited due to capacity reasons.

Changes to the WF catalogue are approved by the examination board upon request by the lecturer responsible for the course in question, after consultation with the faculty council and the study commission. The subjects offered must take into account the competence objectives of the degree programme and must correspond to at least level 6 of the German Qualifications Framework. Multiple credits for subjects are not permitted.

3.3 Module examinations in the main study period

Table 4: Module examinations for the Bachelor's examination, weighting of the grades for the individual examination components and module grades

Module grades for the main study period: Environmental and Process Engineering					
Module	**No**	**Module name**			**Weighting of the module grade for the grade according to § 29**
		Examination	**No**	**Prerequisite**	
Process engineering					
H1	**606210**	**Thermal Process Engineering**			**5**
	606211	Thermal Process Engineering			
H2	**606220**	**Heat and Mass Transfer**			**5**
	606221	Heat and Mass Transfer with Laboratory			
H3	**606230**	**Mechanical Process Engineering**			**7.5**
	606231	Mechanical Process Engineering			
			606232	Process Engineering Laboratory	
H4	**606240**	**Chemical Reaction Engineering**			**7.5**
	606241	Chemical reaction engineering			
			606242	Chemistry & Analytics Laboratory	
H5	**606250**	**Fluid mechanics**			**5**
	606251	Fluid mechanics			
H6	**606260**	**Apparatus engineering**			**5**
	606261	Apparatus engineering			
Measurement and control technology					
H7	**606270**	**Control engineering**			**7.5**
	606271	Control engineering			
			606272	Digitalisation laboratory	
H8	**606280**	**Process Measurement Technology & Applied Mathematics**			**5**
	606281	Process Measurement Technology			
	606282	Applied Mathematics			
Environmental technology					
H9	**606290**	**Environmental and Process Analysis**			**7.5**
	606291	Environmental and Process Analysis			
			606292	Environmental laboratory	
H10	**606300**	**Industrial Ecology**			**5**
	606301	Industrial Ecology			
H11	**606310**	**Project and Innovation Management**			**5**
	606311	Project and Innovation Management			
H12	**606320**	**Sustainable Processes Project**			**15**
	606321	Sustainable Processes Project			
Practical study semester					
H13	**606330**	**Practical study semester**			**0**
			606331	Supervised practical phase	

			606332	Colloquiums	
Elective subjects					
H14	**606340**	**Specialised study 1**			**5**
		Elective subject(s) in accordance with section 3.2			
H15	**606350**	**Specialisation 2**			**5**
		Elective subject(s) in accordance with Section 3.2			
H16	**606360**	**Specialisation 3**			**5**
		Elective subject(s) in accordance with Section 3.2			
H17	**606370**	**Specialisation 4**			**5**
		Elective subject(s) in accordance with section 3.2			
H18	**606380**	**Specialisation 5**			**5**
		Elective subject(s) in accordance with Section 3.2			
Bachelor's thesis					
H19	**606390**	**Bachelor's thesis**			**15**
	606391	Project Planning & Colloquium			
	606392	Bachelor's Thesis			
Total					**120**

3.4 Bachelor's examination

The bachelor's degree certificate contains the module grades for all modules listed in Table 4 and the bachelor's thesis. If several performance assessments take place at course level within a module (including compulsory elective modules), the module grade is determined according to an ECTS-weighted arithmetic mean of the individual performances contained in the module. The overall grade on the Bachelor's degree certificate is calculated as the weighted arithmetic mean of the module grades and the grade for the Bachelor's thesis, with the weights for the individual grades being determined on the basis of the ECTS credits in Table 4.

3.5 Admission requirements

The following admission requirements apply:

The practical study semester must be completed before the Bachelor's thesis is submitted.

Additional requirement for English-language foundation studies:

The admission requirement for admission to the main study programme is that module 606620 *Languages and Academic Skills 2* has been passed at a minimum language level of B2 or equivalent. Proof of this is provided by submitting one of the following certificates: DSH-1, Goethe B2, telc B2 (or comparable tests) in accordance with the framework regulations for German language examinations for studying at German universities. Passing the corresponding CEFR course level of a DaF course at the Centre for Studies and Teaching at Heilbronn University is also accepted as equivalent proof.

3.6 Practical study semester

The requirements for crediting the practical study semester and the office responsible for crediting are regulated in the general section of these study and examination regulations (§§ 4, 7 (2)).

During the practical semester, students should apply the knowledge they have acquired so far in a supervised practical phase. In doing so, they should carry out engineering or information technology activities independently and with shared responsibility.

A practical semester completed abroad is expressly desired.

3.7 Special regulations for Studium-PLUS models during the term of the contract between the cooperating company and the student

As part of their studies, Studium-Plus students are required to complete additional practical training at their partner company during lecture-free and exam-free periods that are not used for statutory holiday entitlement. During these periods, the specialist knowledge acquired to date is applied and deepened in practice, and students gain an in-depth understanding of the working conditions and methods of engineers.

Their engineering-related activities include working as independently and responsibly as possible, as well as working on and solving specific problems in the following possible areas:

- Development
- Laboratory, testing and test field
- Design and standardisation
- Production planning and control
- Production and assembly
- Quality assurance
- Project planning
- or other relevant areas.

The focus is based on the operational possibilities and the content of the degree programme.

The level of the activities must be adapted to the individual's progress in their studies so that the course content can be learned, applied and consolidated through in-depth practical knowledge.

4 Entry into force

These study and examination regulations (SPO 2) shall enter into force on 1 September 2025. Students who have already commenced their studies at the time of entry into force of these study and examination regulations shall complete the remaining examination requirements and preliminary examination requirements in accordance with the previous study and examination regulations (SPO 1).

Heilbronn, 30 April 2025

Signed:

Prof. Dr.-Ing. Oliver Lenzen
Rector

Announcement

The examination regulations are hereby publicly announced in accordance with the announcement regulations of Heilbronn University dated 28 June 2017.

Heilbronn, 30 April 2025

For the Prorectorate for Learning and Teaching

Signed:
Prof. Dr. Ulrich Brecht