

**Master's degree programme:
Artificial Intelligence and Industrial Digitalization (MKD)**

The following study and examination regulations
were examined and adopted in the 459th meeting
of the Senate on 15 October 2025.

Only the German version of this document is legally binding!

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

Master's degree programme

Artificial Intelligence and Industrial Digitalization (MKD)

1 Course structure

1.1 Total scope

The total scope of the compulsory, advanced and elective courses required for successful completion of the programme leads to the acquisition of 90 ECTS credits. The standard period of study is three semesters.

1.2 Structure of the programme

The courses required for successful completion of the programme and the associated coursework and examinations are listed in Tables 1–5. 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 (4), SPO AT Master 3sem).

1.4 Examination board

The responsible examination board is the Examination Board for the Master's degree in Artificial Intelligence and Industrial Digitalization at the Faculty of Engineering.

1.5 Degree

Upon successful completion of the Master's examination, Heilbronn University awards the academic degree Master of Engineering, abbreviated M. Eng.

1.6 Course profiles

The Master's programme in Artificial Intelligence and Industrial Digitalization can be completed with one of four programme profiles: *Engineering*, *Research*, *International* or *Development Management*.

Students can apply for the research projects published on the faculty's website for the programme profile *Research* mentioned in paragraph 1 from the time they are admitted to the programme until the start of lectures. The project supervisor decides on the allocation of the research project in a standardised procedure of the faculty.

Students can apply with a letter of motivation to the Programme Dean for the *Development Management* programme profile mentioned in paragraph 1 from the time they are admitted to the programme until the end of the third week after the start of lectures. Admission is decided by two professors in a standardised procedure of the faculty.

Only students who complete at least 20 ECTS credits at a university abroad or students who are studying under a double degree agreement can choose the *international* programme profile mentioned in paragraph 1.

2 Master's programme

2.1 Modules

The courses in the Master's programme in Artificial Intelligence and Industrial Digitalization are divided into the modules listed in Table 1.

Table 1: Modules in the Master's programme in Artificial Intelligence and Industrial Digitalization

Semester			Course profile				ECTS points
	Module	Name	Engineering	Research	International	Development management	
1	M1	Methods and procedures 1	5	5		5	
	M3	Advanced studies in Artificial Intelligence and Industrial Digitalization	15		10	10	
	M4	Elective studies	5		20	10	
	M5	Advised Research Studies		10			
	M6	Engineering Project	5			5	
	M7	Research Project		15			
Total 1st semester			30	30	30	30	30
2	M2	Methods and procedures 2	5		5		
	M3	Advanced studies in Artificial Intelligence and Industrial Digitalization	5		10	5	
	M4	Elective studies	10		15		
	M5	Advised research studies		15			
	M6	Engineering Project	10			10	
	M7	Research Project		15			
	M8	Development Management				15	
Total 2nd semester			30	30	30	30	30
3	M9	Master's thesis	30	30	30	30	
Total 3rd semester							30
Total Master's							90

2.2 Degree programme profiles

Tables 2–5 show the required coursework for each programme profile in the Master's programme in Artificial Intelligence and Industrial Digitalization.

2.2.1 Engineering programme profile

Table 2: Coursework Engineering programme profile¹

Semester overview Master's: Artificial Intelligence and Industrial Digitalization – Engineering programme profile										
Semester	Course					Examination		ECTS		
	Module	No	Course title	Type	SWS	Type	Duration			
1	M1	617510	Methods and procedures 1							
			Elective subjects in accordance with section 2.3.1					Lx		5
	M3	617530	Advanced studies in Artificial Intelligence and Industrial Digitalization							
			Elective subjects in accordance with section 2.3.2					Lx		15
	M4	617540	Elective studies							
			Elective subjects in accordance with section 2.3.2					Lx		5
	M6	617560	Engineering Project							
		617561	Project work			L	1	LA		5
Totals 1st semester									30	
2	M2	617520	Methods and procedures 2							
			Elective subjects according to section 2.3.1					Lx		5
	M3	617530	Advanced studies in Artificial Intelligence and Industrial Digitalization							
			Elective subjects in accordance with section 2.3.2					Lx		5
	M4	617540	Elective studies							
			Elective subjects in accordance with section 2.3.2					Lx		10
	M6	617560	Engineering Project							
		617561	Project work			L	1	LA		7.5
		617562	Colloquium Project work			S	1	SR		2.5
Totals 2nd semester									30	
3	M9	617590	Master's thesis							
		617591	Master's thesis				0	PT		28
		617592	Master's Thesis Colloquium			S	0	SR		2
Totals 3rd semester									30	

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

2.2.2 Course profile Research

Table 3: Coursework Programme profile Research

Semester overview Master's: Artificial Intelligence and Industrial Digitalization – Programme profile Research									
Semester	Course					Examination		ECTS	
	Module	No	Course title	Type	SWS	Type	Duration		
1	M1	617610	Methods and Procedures 1						
			Compulsory subject according to section 2.3.1			Lx		5	
	M5	617650	Advised Research Studies						
			Elective subjects in accordance with section 2.3.2 ¹⁾			Lx		10	
	M7	617670	Research Project						
		617671	Research project with publication ²⁾	L	2	LA		15	
Totals 1st semester								30	
2	M5	617650	Advised Research Studies						
			Elective subjects in accordance with section 2.3.2			Lx		15	
	M7	617670	Research Project						
		617671	Research project with publication ²⁾	L	2	LA		12.5	
		617672	Research project colloquium	S	1	SR		2.5	
Totals 2nd semester								30	
3	M9	617690	Master's thesis						
		617691	Master's thesis		0	PT		28	
		617692	Master's Thesis Colloquium	S	0	SR		2	
Totals 3rd semester								30	

¹⁾ The selection of elective subjects is the responsibility of the primary supervisor of the research project in consultation with the student.

²⁾ Supervision of the research project is provided by a primary and secondary supervisor, who are professors at HHN. As part of the research project, an article must be submitted for peer review as a scientific publication. The article must be either a journal article or a full paper for a relevant conference and must be at least four pages long in standard format. Submission for publication is only permitted with the express consent of the supervisors. The assessment of the submitted article will be included in the evaluation of the project work.

2.2.3 International programme profile

Table 4: Coursework International programme profile

Semester overview Master's: Artificial Intelligence and Industrial Digitalization – International programme profile									
Semester	Course					Examination		ECTS	
	Module	No	Course title	Type	SWS	Type	Duration		
1	M3	617730	Advanced studies in Artificial Intelligence and Industrial Digitalization						
			Elective subjects in accordance with section 2.3.2			Lx		10	
	M4	617740	Elective studies						
			Elective subjects in accordance with section 2.3.2			Lx		20	
	Totals 1st semester								30
2	M2	617720	Methods and procedures 2						
			Elective subjects in accordance with section 2.3.1			Lx		5	
	M3	617730	Advanced studies in Artificial Intelligence and Industrial Digitalization						
			Elective subjects in accordance with section 2.3.2			Lx		10	
	M4	617740	Elective studies						
			Elective subjects in accordance with section 2.3.2			Lx		15	
	Totals 2nd semester								30
3	M9	617790	Master's thesis						
		617791	Master's thesis		0	PT		28	
		617792	Master's Thesis Colloquium	S	0	SR		2	
	Totals 3rd semester								30

2.2.4 Development Management programme profile

Table 5: Coursework Development Management programme profile

Semester overview Master's: Artificial Intelligence and Industrial Digitalization – Development Management programme profile										
Semester	Course						Examination		ECTS	
	Module	No	Course title	Type	SWS	Type	Duration			
1	M1	617810	Methods and procedures 1							
			Elective subjects in accordance with section 2.3.1					Lx		5
	M3	617830	Advanced studies in Artificial Intelligence and Industrial Digitalization							
			Elective subjects in accordance with section 2.3.2					Lx		10
	M4	617840	Elective studies							
			Elective subjects in accordance with section 2.3.2					Lx		10
	M6	617860	Engineering Project							
		617861	Project work			L	1	LA		5
Totals 1st semester									30	
2	M3	617830	Advanced studies in Artificial Intelligence and Industrial Digitalization							
			Elective subjects in accordance with section 2.3.2					Lx		5
	M6	617860	Engineering Project							
		617861	Project work			L	1	LA		7.5
	M8	617862	Colloquium Project work			S	1	SR		2.5
		617880	Development Management							
			Elective subjects in accordance with section 2.3.2					Lx		15
		Totals 2nd semester								
3	M9	617890	Master's thesis							
		617891	Master's thesis				0	PT		28
		617892	Master's Thesis Colloquium			S	0	SR		2
Totals 3rd semester									30	

2.3 Compulsory, advanced and elective subjects

2.3.1 Table 6: Compulsory and elective subjects in the Methods and Procedures 1 and 2 modules (M1 and M2)

Table 6a: In the *Engineering, International* and *Development Management* degree programme profiles, the subjects listed in Table 6a can be selected in the Methods and Procedures 1 and, if applicable, Methods and Procedures 2 modules to the extent of the ECTS credits to be fulfilled in the module. Multiple credits for examinations are not possible.

Course				Examination		ECTS points
No.	Title	Type	Scope SWS	Type	Duration in minutes	
617901	Numerical and Optimisation Methods	V/Ü	2	LP		2.5
617902	Statistical Methods	V/Ü	2	LK	60	2.5
617903	Selected Topics in Mathematics	V/Ü	2	LK	60	2.5
617904	Design of Experiments	V/Ü	2	LK	90	2.5

Table 6b: In the *Research* programme profile, the subject Research Management is the sole component of the Methods and Procedures module (M1). This subject cannot be selected in the other programme profile.

Course				Examination		ECTS points
No	Name	Type	Scope SWS	Type	Duration in minutes	
617905	Research Management	V/Ü	4	LP		5

2.3.2 Subjects of the specialisation and elective studies

In order to fulfil the examination requirements for **the specialisation (M3)** of the corresponding degree programme profile, students select subjects from the VF catalogue to the extent of the ECTS credits to be fulfilled in the module.

To fulfil the **elective studies (M4)** of the corresponding degree programme profile, subjects from the VF and WF catalogues can be selected to the extent of the ECTS credits to be fulfilled in the modules.

To fulfil the examination requirements of the **Advised Research Studies** module (**M5**) in the *Research* programme profile, students select subjects from the VF and WF catalogues totalling 25 ECTS.

To fulfil the examination requirements for the **Development Management** module (**M8**) in the *Development Management* programme profile, students select subjects from the EM catalogue totalling 15 ECTS. Subjects from another programme at Heilbronn University or another university may be recognised for this programme profile upon application to the examination board, provided that they are business administration subjects from a degree programme.

The VF, WF and EM catalogues are part of the module handbook and are made 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 outside the faculty of Heilbronn University or another university can be recognised by the examination board upon request. Only engineering, computer science or natural science subjects from a master's degree programme (at least level 7 of the German Qualifications Framework) that take into account the competence objectives of the degree programme can be recognised. Participation in subjects from the VF, WF and EM catalogues may be limited for capacity reasons.

Upon application by the teacher responsible for the course in question, changes to the VF, WF and EM catalogues are approved by the examination board, after consultation with the faculty council and the study commission. The subjects offered must take into account the competence objectives of the degree programme. These must correspond to at least level 7 of the German Qualifications Framework. Multiple credits for subjects are not permitted.

2.4 Module examinations in the Master's programme

The module examinations for the Master's examination, the associated examination performances, and the weightings of the grades for the individual examination performances and module grades, as well as the Master's thesis, are shown in Table 7 *Engineering* programme profile, Table 8 *Research* programme profile, Table 9 *International* programme profile, or Table 10 *Development Management* programme profile.

Table 7: Module examinations Engineering degree programme profile – Weighting of individual examination grades and module grades

Module grades Master's: Artificial Intelligence and Industrial Digitalization – Engineering degree programme profile			
Module	No	Module name	Weighting of the module grade for the grade in accordance with § 24
		Examination	
M1	617510	Methods and procedures 1	5
		Elective subjects in accordance with section 2.3.1	
M2	617520	Methods and Procedures 2	5
		Elective subjects in accordance with Section 2.3.1	
M3	617530	Advanced studies in Artificial Intelligence and Industrial Digitalization	20
		Elective subjects in accordance with Section 2.3.2	
M4	617540	Elective studies	15
		Elective subjects in accordance with Section 2.3.2	
M6	617560	Engineering Project	15
	617561	Project work	
	617562	Colloquium Project Work	
M9	617590	Master's Thesis	30
	617591	Master's Thesis	
	617592	Master's Thesis Colloquium	
Total			90

Table 8: Module examinations Research programme profile – Weightings of individual examination grades and module grades

Module grades Master's: Artificial Intelligence and Industrial Digitalization – Degree programme profile Research			
Module	No	Module name	Weighting of the module grade for the grade according to § 24
		Examination	
M1	617610	Methods and procedures 2	5
		Compulsory subject according to section 2.3.1	
M5	617650	Advised Research Studies	25
		Elective subjects in accordance with Section 2.3.2	
M7	617670	Research Project	30
	617671	Research project with publication	
	617672	Colloquium Research project	
M9	617690	Master's thesis	30
	617691	Master's Thesis	
	617692	Master's Thesis Colloquium	
Total			90

Table 9: Module examinations International programme profile – Weightings of individual examination grades and module grades

Module grades Master's: Artificial Intelligence and Industrial Digitalization – International programme profile			
Module	No	Module name	Weighting of the module grade for the grade according to § 24
		Examination	
M2	617720	Methods and procedures 2	5
		Elective subjects in accordance with section 2.3.1	
M3	617730	Advanced studies in Artificial Intelligence and Industrial Digitalization	20
		Elective subjects in accordance with Section 2.3.2	
M4	617740	Elective studies	35
		Elective subjects in accordance with Section 2.3.2	
M9	617790	Master's thesis	30
	617791	Master's thesis	
	617792	Master's Thesis Colloquium	
Total			90

Table 10: Module examinations Development Management programme profile – Weighting of individual examination grades and module grades

Module grades Master's: Artificial Intelligence and Industrial Digitalization – Development Management programme profile			
Module	No	Module name	Weighting of the module grade for the grade according to § 24
		Examination performance	
M1	617810	Methods and procedures 1	5
		Elective subjects in accordance with section 2.3.1	
M3	617830	Advanced studies in Artificial Intelligence and Industrial Digitalization	15
		Elective subjects according to section 2.3.2	
M4	617840	Elective studies	10
		Elective subjects in accordance with Section 2.3.2	
M6	617860	Engineering Project	15
	617861	Project work	
	617862	Colloquium Project Work	
M8	617880	Development Management	15
		Elective subjects in accordance with section 2.3.2	
M9	617890	Master's thesis	30
	617891	Master's thesis	
	617892	Master's Thesis Colloquium	
Total			90

2.5 Master's examination

The Master's certificate contains the module grades for all module examinations listed in Tables 7, 8, 9 or 10, including the Master's thesis. 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 contained in the module. The module grade for the module examination is the weighted arithmetic mean of the grades for the examination performances in the courses belonging to the respective module examination. The overall grade for the Master's certificate is calculated from the weighted arithmetic mean of the module grades, including the grade for the Master's thesis, whereby the weights for the individual grades are determined on the basis of the ECTS from the respective tables.

3 Entry into force and transitional provisions

3.1 Entry into force

These study and examination regulations shall enter into force on 1 September 2026.

Heilbronn, 15 October 2025

Signed:

Prof. Dr.-Ing. Oliver Lenzen
Rector

Announcement

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

Heilbronn, 15 October 2025

On behalf of the Vice-Rectorate for Learning and Teaching

Signed:

Professor Ulrich Brecht