Study and Examination Regulations

for the Master's Degree Programme

Artificial Intelligence and Data Science (MAID)

at

Deggendorf Institute of Technology

of 20 December 2023

On the basis of Articles 9, 80 (1), 84 (2) Clause 1 of the Bavarian Higher Education Act (BayHSChG) of 5 August 2022 (GVBl. p. 414, Bay RS 2210- 1-1-WK), last amended by Section 3 of the Act of 23 December 2022 (GVBl. p. 709), Deggendorf Institute of Technology enacts the following by-laws:

Preamble

In a joint initiative, Deggendorf Institute of Technology (DIT) and the University of South Bohemia in České Budějovice (USB), funded by the- Union, have come together to jointly conduct the- programme of "Artificial Intelligence and Data Science" (MAID) as part of the Interreg CEZ-Bay Programme. Participation in the MAID and the organisation of their cooperation are governed by agreements between the participating universities (consortium agreement).

Due to the common nature of the course, students have to spend one semester at each university within the first two semesters. Students who are no longer registered at one of the two universities during the programme will not be able to complete their degree as intended.

The following study and examination regulations regulate the examinations held at DIT. The study and examination regulations of the USB apply to the compulsory subject modules offered by the USB.

Section 1
Aim of the study programme

(1) The master's programme of Artificial Intelligence and Data Science is primarily (MAID) intended to enable graduates of the bachelor's

programmes of Computer Science, Artificial Intelligence and other technically related Diplom or BT:'s programmes to substantiate the knowledge that they have acquired so far with theoretical and application-oriented knowledge in the field of artificial intelligence, and thereby be especially well-equipped to meet the requirements of modern development tasks in this high-tech sector. The programme imparts essential advanced technical knowledge in selected sub-areas of artificial intelligence and data science, which are necessary for the development of complex intelligent systems.

(2) In addition, the programme further qualifies the graduates to pursue applied research and development in these areas in an independent and innovative manner.

Section 2
Structure of the programme, standard
period of study

(1) This degree programme is a full-time programme. A total of 120 ECTS credits as per the European Credit Transfer and Accumulation System (ECTS) will be awarded on successful completion of the studies. The programme is concluded on completion of a master's thesis and the state examination.

(2) In order to obtain their master's degree (M.Sc.), students have to acquire a total of 120 ECTS. The standard period of study for MAID is four semesters, consisting of three theoretical semesters and one practical semester.

(3) The programme can be started in the summer or the winter semester. If students begin their degree programme in the summer semester, the first semester takes place at DIT. If students begin their degree programme in the winter semester, the first semester takes place at the USB in the Czech Republic.

(4) The programme comprises at least one semester in Deggendorf/Germany and at least one semester in České Budějovice/Czech Republic.

Section 3
Qualification requirements

(1) The qualification requirements for admission to the master's programme of Artificial Intelligence and Data Science are:

1. Successful completion of an undergraduate degree of at least 180 ECTS credits at a national or international institute of higher education in the disciplines of artificial intelligence, data science, computer science, business informatics or a related field, or an equivalent qualification. The consortium decides on the equivalence of the degrees and grades and

2. Proof of at least 18 ECTS from the fields of artificial Intelligence and/or

data science and

3. Proof of the programme-specific aptitude as part of the process in accordance with Section 6 of these by-laws.

(2) Proof of the following English language skills has to be provided for this study programme:

If English is not the native language, proof of English language skills of level B2 as per the Common European Framework of Reference for Languages must be provided.

Regarding the proof, the regulations set out in Section 3 of the general examination regulations for additional qualification in foreign languages and compulsory elective subjects of a general academic nature (AWP) of Deggendorf Institute of Technology shall apply as amended.

Section 4
Accreditation of competences

(1) If applicants provide evidence of an admission-substantiating university degree, for which 210 ECTS points have been awarded or are to be regarded as equivalent, it is possible to have the acquired theoretical and practical competences credited for the internship semester if the prerequisites of Art. 86 of the BayHIG are met. The decision on this is made by the internship coordinator at the USB.

Section 5
Application process

(1) Applications for admission to the programme must be submitted using the form made available online by the Centre for Studies of Deggendorf Institute of Technology. Applications not submitted in due time shall not be considered. Foreign application documents and/or application documents in a language other than English must be translated into English and certified by a state-recognised translation agency.

(2) The application must include the following documents:

1. Degree certificate and diploma for the qualification to be demonstrated in accordance with Section 3 of these by-laws, and proof of the ECTS acquired to date by providing the latest transcript of records.

2. CV in tabular form.

3. APS Certificate for all candidates applying with a Chinese, Vietnamese or Indian school leaving certificate or university degree.

Section 6
Procedure for determining programme-specific aptitude

(1) Programme-specific aptitude is determined through a written test that can also be conducted online, if necessary. The test includes complex tasks on relevant topics from the areas of mathematics, programming, databases and AI/neural networks. These tasks are set and evaluated by the consortium which consists of at least two professors from DIT and the USB. For further consideration in the application process, the test must be taken "mit Erfolg" ('successfully').

(2) Participants will be invited via e-mail.

(3) The selection committee may waive a candidate's obligation to take the aptitude test for the degree programme if the applicant demonstrates above-average knowledge of the subject matter, as verified through their degrees falling under Section 3(1) Clause 1.

a) Degrees with a grade better than 2.5 (European applicants better than 2.0) and an above-average knowledge of AI, Computer Science and DS are considered above average.

b) If proof of a GRE (general) or GATE certificate is provided, participation in the assessment procedure may be waived by the selection committee. Minimum Score: GRE VR158/QR160/AW 4.0 or GATE 60.

Section 7
Modules and course assessments

(1) The degree programme has a modular structure. A module is a set of teaching and learning units which are sequential, self-contained and assessable; they are compiled according to technical and methodological aspects. A module can consist of sub-modules. Modules and sub-modules carry ECTS points.

(2) Courses and examinations in compulsory subjects are conducted in English.

(3) Compulsory modules and compulsory elective modules, their weekly semester hours and ECTS credits, the type of courses and examinations are set out in the annexes to these study and examination regulations.

(4) All modules are either compulsory modules or compulsory elective modules:

1. Compulsory modules are those modules of a programme that are mandatory for all students.

2. Compulsory elective modules are modules that are offered as alternatives, either individually or in groups. Each student must individually select certain modules from these in accordance with the study and examination regulations. The selected modules will be treated as compulsory modules.

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3. In modules FWPM 1 and FWPM 2 of the first semester, students may choose a maximum of two modules from the bachelor's module catalogue.

4. In addition to the subject-specific compulsory elective modules, which are offered in English, students may choose individual German-language subject-specific compulsory elective modules at their own request.

Section 8
Curriculum

(1) The Faculty of Artificial Intelligence draws up a curriculum to safeguard the range of courses and to inform the students. Details of the course of studies are derived from this curriculum. The curriculum is set by the Faculty Board and is to be made public at the Institute. The announcement must be made at the latest at the beginning of the lecture period of the semester.

(2) In particular, the curriculum will contain regulations and information regarding:

1. the distribution and number of weekly semester hours and ECTS credits per module/sub-module and semester

2. the catalogue of compulsory modules and subject-specific compulsory elective modules (FWPMs)

3. the structure and organisation of courses in individual modules/sub-modules

4. detailed provisions for examinations and for coursework-related proofs of achievements and attendance.

(3) There is no claim that all elective and optional modules will actually be offered. Likewise, there is no entitlement to such courses being held when the number of participants is insufficient.

Section 9
Regulations on study progress

As is the case at the partner university USB in the Czech Republic, students are obliged to acquire at least 20 ECTS per semester in accordance with the contents of the curriculum.

Section 10
Evaluation of individual examination achievements,
calculation of the final grade,
overall examination result, Examination Committee

(1) Grades from 1 to 5 are used to evaluate the individual examination achievements and can be increased or decreased by 0.3 for a differentiated evaluation. Grades 0.7, 4.3, 4.7 and 5.3 are excluded. Based on the

assessment, final grades are determined. If several assignments are to be combined for a final grade, the grade is calculated from the weighted arithmetic mean, which is rounded down to one decimal place. Grades are weighted according to their ECTS credits.

(2) The master's examination is considered passed if the minimum grade of "ausreichend" ("satisfactory") or the grade "mit Erfolg abgelegt" ("completed successfully") has been achieved in all modules, including the master's thesis, and thereby the 120 ECTS points required to pass the master's examination have been obtained.

(3) The overall examination result is calculated from the weighted arithmetic mean, rounded down to one decimal place of the final grades of modules and the grade obtained in the master's thesis. Grades are weighted according to their ECTS credits.

(4) In addition to the overall grade assigned as per para. 3, a relative grade is awarded based on the numerical value attained, in keeping with the ECTS User Guide, as per the provisions of Section 8(6) General Examination Regulations of Deggendorf Institute of Technology.

(5) An Examination Committee is formed. It comprises one chairperson and two other members, who are appointed by the Faculty Council of the Faculty of Computer Science and the USB.

Section 11
Internship semester

(1) The internship semester lasts 12 weeks and involves an internship in a company and writing of an internship report.

(2) In duly justified exceptional cases, proof of practical activity can be substituted by subject-related practical training. The decision on this is made by the internship coordinator at the USB.

(3) Entry into the internship semester requires that at least 40 ECTS credit points have been achieved.

(4) If the training objective is not affected, then, as an exception, student need not make up for interruptions in practical work if they are not responsible for these interruptions (e.g. shutdown, illness) and if the total number of days lost due to the interruption is not more than five working days. In the case of a reserve duty training exercise, the make-up period shall be waived if it does not last more than ten working days. Students must prove that they are not responsible the interruption. If the interruptions extend beyond five and ten working days respectively, students must make up for the total number of lost days. Work completed as overtime can offset interruptions.

Section 12
Master's thesis, master's seminar and
state examination

(1) In the master's thesis, students are to demonstrate their ability to work independently on practical problems in the areas of artificial intelligence and data science using the skills that were acquired during the course, within a specified period of time and by applying scientific principles and methods.

(2) Students must have attained at least 40 ECTS in order to be admitted to the master's thesis.

(3) The interval between the announcement of the topic and the submission of the master's thesis should be appropriate to the scope of the topic and is six months. Upon request, this period can be extended for good cause in special cases by the Examination Committee.

(4) The master's thesis is written in English.

(5) The state examination takes place as part of the master's seminars. As part of the state examination, students have to defend their thesis and answer general questions about the general study contents according to the regulations of the USB. The Examinations Committee of the state examination consists of at least 4 members (chairperson and at least one examiner from DIT and at least two examiners from the USB).

(6) The state examination consists of 2 parts:
1. Part 1: Presentation and thesis defence (45 minutes in total)
   a) 15 to 20 minutes Presentation
   b) 15 minutes Questions from the feedback
   c) 15 minutes Discussion
2. Part 2: oral examination incl. questions regarding the degree programme (75 minutes in total)
   a) 25 minutes: "Information Theory", "Math for Artificial Intelligence and Data Science", "Theoretical Fundamentals of AI and Data Science"
   b) 25 minutes: "AI and Software Development", "Advanced Machine Learning", "Computational Intelligence"
   c) 25 minutes: "Advanced Data Storages and Analyses", "Parallel Programming and Computing", "Feature Engineering for Data Science"

(7) The state examination can be retaken once if it is not successfully passed.

Section 13
Master's examination certificate, academic degree and Diploma
Supplement

(1) A joint certificate of the passed master's examination and a joint master's degree certificate is issued in accordance with the respective template given in Appendix 2.

(2) Based on the passed master's examination, Deggendorf Institute of Technology and the University of South Bohemia in České Budějovice will award the degree of "Master of Science", abbreviated as "M.Sc.".

 The corresponding certificate will be issued in accordance with the respective template in the appendix.

(3) The certificate will be accompanied by a Diploma Supplement outlining, in particular, the essential course content forming the basis of the degree, the progression of the studies, and the qualification obtained by virtue of the degree.

Section 14
Other provisions

The provisions of the General Examination Regulations of Deggendorf Institute of Technology and the Enrolment, re-registration and de-registration statutes – without the cut-off periods for registration and admission - shall apply as amended for the courses offered, in particular for admission, procedural questions, examinations and the examination procedure.

Section 15
Scope

It should be noted that these study and examination regulations and the General Examination Regulations of Deggendorf Institute of Technology apply for the examinations that are held at Deggendorf Institute of Technology. The regulations in force at the USB apply to the compulsory modules taught there.

Section 16
Coming into effect

These study and examination regulations enter into force on 15 March 2024 and shall apply for all students who start their studies on this date.

Appendix
Overview of the modules of the master's degree programme Artificial Intelligence and Data Science at DIT and the USB.

Module No.	Name of module	SWS	1. Sem.	2. Sem.	3. Sem.	4. Sem.	ECTS per Sem	ECTS	Form of teaching	Admission requirements	Type of examination	Exam duration
M.Sc. Artificial Intelligence and Data Science		**Semester hours per week (SWS)**								**Examinations**		
AID-01	Artificial Intelligence and Software Development	**4**	**4**					**5**	**SU/Ü**		PoP	90 min.
AID-02	Theoretical Foundations of Artificial Intelligence and Data Science	**6**	**6**					**8**	**SU/Ü**		schrP	90 min.
AID-03	Advanced Machine Learning	**4**	**4**					**5**	**SU/Ü**		schrP	90 min.
AID-04	FWPM 1**	**4**	**4**					**5**	s/SU/Ü/V		1	
AID-05	FWPM 2**	**4**	**4**					**5**	s/SU/Ü/V		1	
AID-06	Foreign Language 1*	**2**	**2**					**2**	**SU/Ü**		schrP	60 min.
AID-07	Information Theory	**3**		**3**				**4**	**SU/Ü**		2	
AID-08	Mathematics for Artificial Intelligence and Data Science	**4**		**4**				**6**	**SU/Ü**		2	
AID-09	Computational Intelligence	**3**		**3**				**4**	**SU/Ü**		2	
AID-10	Feature Engineering for Data Science	**3**		**3**				**4**	**SU/Ü**		2	
AID-11	Advanced Data Storages and Analyses	**4**		**4**				**6**	**SU/Ü**		2	
AID-12	Parallel Programming and Computing	**3**		**3**				**4**	**SU/Ü**		2	

Code	Module	SWS						ECTS	Type			
AID-13	Foreign Language 2*	2		2				2	SU/Ü		2	
AID-14	Internship				x			20	PP		PrP	
AID-15	FWPM 3	4		4				5	s/su/ü/v		1	
AID-16	FWPM 4	4		4				5	s/su/ü/v		1	
AID-17	Advanced Topics in AI and Data Science	4			4			5	S		PStA	
AID-18	Master's Thesis				x			20			MA	
AID-19	Master's Seminar	4			4			5			mStE	
	Total SWS	62	24	22	8	8	0					
	Total ECTS							120				

Summer semester (1) in Deggendorf; winter semester (2) in České Budějovice; location of the 3rd & 4th semesters can be chosen by the student.

* Students cannot select their own native language for the foreign language course. Foreign Language means German as a Foreign Language or Czech.

** In the first semester, students are allowed to choose up to two bachelor modules to address and make up for any missing skills.

Abbreviations:

ECT	European Credit Transfer System	schrP	Written examination	S/SU/Ü	Seminar/seminar-based lesson, exercise class
SWS	Weekly semester hours	PStA	Project assignment	S	Seminar
FWPM	Subject-specific compulsory elective module	PrP	Practical examination	SU	Seminar-based tuition
		1	Type of examination for the chosen module	Ü	Exercise class
ZV	Admission requirement	2	Type of exam according to USB curriculum		
		MA	Master's thesis		
		mStE	Oral state examination		

Issued based on the resolution of the Senate of Deggendorf Institute of Technology dated 20 December 2023 and the regulatory approval of the Vice President of Deggendorf Institute of Technology dated 28 February 2024

Signed
Prof. Waldemar Berg
Vice President Deggendorf

These by-laws were recorded at Deggendorf Institute of Technology on 28 February 2024. The recorded by-laws were duly posted on the notice boards on 28 February 2024. Their day of announcement is therefore 28 February 2024.