

**Study and Examinations Regulations
for the Master's degree programme**

**Artificial Intelligence and Data Science at
Deggendorf Institute of Technology
dated 15 March 2021**

On the basis of Art. 13 Para. 2 Clause 2, 58 Para. 1, 61 Para. 2 Clause 1 of the Bavarian Higher Education Act (BayHSchG) of 23 May 2006 (GVBl. p. 245, Bay RS 2210-1-1-WK), last amended by Section 1 Para. 186 of the Ordinance of 26 March 2019 (GVBl. p. 98), 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 European Union, have come together to jointly conduct the Master programme of "Artificial Intelligence and Data Science" (MAID) as part of the Interreg CEZ-Bay Programme. Participation in 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 at least one semester at each university.

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) ¹The master's programme of Artificial Intelligence and Data Science is primarily intended to enable graduates of the bachelor's programmes of Computer Science, Artificial Intelligence as well as other technically related diploma or bachelor'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 area.
²The course 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 course further qualifies the graduates to work independently and creatively in applied research and development in the said areas.

Section 2 Structure of the programme, standard period of study

- (1) ¹The standard period of study is four semesters. ²A total of 120 ECTS credits as per the European Credit Transfer and Accumulation System (ECTS) will be awarded on successful completion of the studies. ³The course ends with a master's thesis.
- (2) In order to obtain a master's degree (M.Sc.), students have to acquire a total of 300 ECTS, including their bachelor's programme. The standard period of study for MAID is four semesters (120 ECTS), consisting of three theoretical semesters and one practical semester.
- (3) The course can be started in the winter and summer semester.
- (4) It comprises at least one semester in Deggendorf (SS) and one semester in České Budějovice (WS).

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 a bachelor's or Diploma programme in artificial intelligence, data science, computer science, business informatics or a related subject area or an equivalent degree. The consortium decides on the equivalence of 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 programme-specific aptitude as part of a 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 has to 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 the Deggendorf Institute of Technology shall apply as amended. https://www.th-deg.de/Studierende/AWP-Sprachkurse/rapo_fremdsprachen_awp_en.pdf

Section 4 Accreditation of skills

¹If applicants provide evidence of an admission-substantiating university degree, for which 210 ECTS credits have been awarded or are to be regarded as equivalent, it is possible to have the acquired skills credited to the internship semester if the prerequisites of Art. 63 Para. 1 Sentence 1 of the BayHSchG are met.

Section 5 Application process

- (1) Applications for to the course 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 deed for the qualification to be demonstrated in accordance with Section 3 of these by-laws, as well as proof of the ECTS acquired so far in the form of the most recent grade sheet.
 2. CV in tabular form.

Section 6 Procedure for determining programme-specific aptitude

- (1) Programme-specific aptitude is determined through a written test that can also be conducted online. 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.

Programme-specific aptitude is considered as proven if the test is completed "successfully".

- (2) The procedure for determining programme-specific aptitude is conducted every semester. Participants are invited for this via e-mail.

Section 7 Modules and proof of academic performance

- (1) ¹The course is modular in structure. ²A module is a cluster of temporally connected teaching and learning units that are complete in themselves and that can be reviewed; they are put together considering technical and methodical aspects. ³A module can consist of sub-modules. ⁴Modules and sub-modules carry ECTS credits.
- (2) Courses and examinations in compulsory subjects are conducted in English.
- (3) ¹Compulsory modules and 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 elective modules:
 1. Compulsory modules are the modules of a programme that are mandatory for all students
 2. ¹Elective modules are modules that are offered as alternatives to individuals or groups. ²Each student must individually select certain modules from these in accordance with the study and examination regulations. ³Selected modules are treated as compulsory modules. Which elective modules have to be chosen needs to be clarified in advance with the programme's subject advisor at DIT or USB.

Section 8 Curriculum

- (1) ¹The 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. ²The curriculum is determined by the Faculty Council and must be announced within the university. ³The announcement must be made at the latest at the beginning of the lecture period of the semester.
- (2) In particular, the curriculum contains 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 qualification goals and teaching contents of the modules/sub-modules
 4. the structure and organisation of courses in individual modules/sub-modules
 5. detailed provisions for examinations and for coursework-related proofs of performance and attendance.
- (3) ¹There is no guarantee that all planned specialisations, elective modules and optional modules will actually be offered ²Likewise, there is no entitlement to such courses being held when the number of participants is insufficient

Section 9
Evaluation of individual examination performances,
calculation of the final grade,
overall examination result, Examination Committee

- (1) ¹Grades from 1 to 5 are used to evaluate the individual examination performances, and can be increased or decreased by 0.3 for a differentiated evaluation. ²Grades 0.7, 4.3, 4.7 and 5.3 are excluded. ³Final grades are formed based on the evaluation. ⁴If several examination performances 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. ⁵During the calculation, the grades are weighted according to their ECTS credits.
- (2) ¹The master's examination is considered as passed if the minimum grade of "satisfactory" or the grade "completed successfully" is obtained in all modules including the master's thesis, and hence the 120 ECTS credits necessary for passing the master's examination are obtained.
- (3) ¹The 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. ²During the calculation, the grades are weighted according to their ECTS credits.
- (4) In addition to the overall examination grade in accordance with Para. 3, a relative grade based on the numerical value attained is shown according to the ECTS user guide as per regulations contained in Section 8 Para. 6 of the 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 10
Internship semester

<https://th-deg.de/sd-b-en>**Section 11**
Master's thesis and master's seminar

- (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) ¹The 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.
²Upon request, this period can be extended for good cause in special cases by the Examination Committee.
- (3) The master's thesis must be written in English.
- (4) ¹The thesis is followed by a master's seminar. ²As part of the seminar, students have to defend their thesis and answer general questions about the general study contents according to the regulations of the USB for all master candidates. ³The Examination Committee of the master's seminar consists of at least 5 members (one chairperson and at least two examiners from DIT and at least two examiners from the USB). ⁴The duration of the master's seminar examination is at least 30 minutes plus questions; it can be repeated once if not passed in the first attempt.

Section 12

Master's examination certificate, academic degree and diploma supplement

- (1) ¹A 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 Annex 2.
- (2) ¹Based 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.". ²A certificate indicating this will be issued in accordance with the respective template in the annex.
- (3) A diploma supplement, which describes in particular the essential course content underlying the degree, the course of studies and the qualification obtained with the degree, is enclosed with the certificate.

Section 13

Other provisions

The provisions of the General Examination Regulations for Universities of Applied Sciences (RaPO), 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 14

Scope

It should be noted that these study and examination regulations, the provisions of the General Examination Regulations for Universities of Applied Sciences (RaPO) and the General Examination Regulations of Deggendorf Institute of Technology govern the examinations that are held at Deggendorf Institute of Technology. The provisions applicable at the USB shall apply for the compulsory modules that are conducted there.

Section 15

Coming into effect

These study and examination regulations enter into force on 15 March 2021 and shall apply for all students starting their studies on this date.

Annex
Overview of the modules and examination achievements of the master's programme in Artificial Intelligence and Data Science at DIT and the USB.

Master's Degree Programme in Artificial Intelligence and Data Science			Weekly semester hours (SWS)					ECTS	Form of teaching	Type of examination achievement
Module No.	Module/Course	SWS	1. Sem.	2. Sem.	3. Sem.	4. Sem.				
Overview of module/course numbers, module and course descriptions, SWS and ECTS										
AID-01	Artificial Intelligence and Software Development	4	4				5	SU/Ü	schrP 90min	
AID-02	Theoretical Fundamentals of Artificial Intelligence	6	6				8	SU/Ü	schrP 90min	
AID-03	Advanced Machine Learning	4	4				5	SU/Ü	schrP 90min	
AID-04	FWPM 1**	4	4				5	s/su/ü/v		
AID-05	FWPM 2**	4	4				5	s/su/ü/v		
AID-06	Compulsory Language: German or Czech*	2	2				2	SU/Ü	schrP 60min	
AID-07	Information Theory			3			4	SU/Ü	exam	
AID-08	Mathematics for Artificial Intelligence and Data Science			4			6	SU/Ü	credit+exam	
AID-09	Computational Intelligence			3			4	SU/Ü	graded credit	
AID-10	Distributed Algorithms			3			4	SU/Ü	credit+exam	
AID-11	Advanced Data Storages and Analyses			4			6	SU/Ü	credit+exam	
AID-12	Parallel Programming and Computing			3			4	SU/Ü	credit+exam	
AID-13	Compulsory Language: German or Czech*			2			2	Ü	credit	
AID-14	Internship				x		20	PP	credit	
AID-15	FWPM 3**				4		5	s/su/ü/v		
AID-16	FWPM 4**				4		5	s/su/ü/v		
AID-17	Advanced Topics in AI					4	5	S	PStA	
AID-18	Master's Thesis					x	20		MA	
AID-19	Master's Seminar					x	5	S	mdIP	
Total SWS			24	22	8	4	58			
Total ECTS			30	30	30	30	120			
as of	15 March 2021									
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 language (level B2 or higher) for the compulsory language course. Czech students primarily studying in Germany need to take German as a foreign language as „Compulsory Language: German“ students primarily studying in the Czech Republic need to take Czech as „Compulsory Language: German or Czech“ All Students of other nationalities need to demonstrate a completed A1 level of proficiency in either German or Czech, depending on where they are primarily studying, by the end of the study programme. This can be achieved by successfully completing a language course for level A1 (or higher) at one of the two universities. A minimum of 4 ECTS and maximum of 8 ECTS must/can be used for language courses. Only national language courses of each of the respective universities in the programme can be provided with certainty.										
•• The choice of FWPM must be discussed in advance with the student advisory service.										

Abbreviations			
Types of courses:			
V	Lecture		Form of teaching with active listening of a professor's or lecturer's lecture
Su/Ü	Seminar-style lesson along with exercises		Interactive form of teaching with active involvement of students, in the form of discussions, assignments and practical tasks, e.g., group work, case studies.
Pr	Period of practical training / internship		Interactive form of teaching with active involvement of students in the form of practical tasks that are to be carried out, e.g. experiments.
PP	Practical phase		The teaching method which is normally employed in a company or at another training institution for professional practical experience outside the university or college. The course and contents of the practical phase will be regulated by the University or coordinated with it.
S	seminar		Small-scale course with a significant but variously active amount of participants with the following characteristics: (1) Participants take on a significant share of active design; the lecturer leads, controls, distributes tasks, corrects, etc. (2) Participants actively design and present solutions to tasks or talk about their own or others' work (3) Intensive interaction between the lecturer and participants
Requirements for sitting examinations:			
PrL	Practical performance	written oral pract.	The desired skill profile is tested during a practical training by means of experiments, programming tasks, etc., depending on the subject area. Practical trainings serve in particular the practical application, evaluation and knowledge acquisition of theoretical principles in a module. Experiments during practical trainings can be supplemented by a written detailed exposition. The concrete components of a practical training and the skills that are to be tested by it are listed in the module description. The number of practical achievements can be up to 10.
ÜbL	Practical assignments	written oral pract.	The assignments examine the skill profile aimed at by working through assigned tasks (such as laboratory assignments, simulations, assignment tasks, processing of case studies, context specific queries). They are used to test both factual knowledge and detailed knowledge and how these are applied. Assignments can be completed in written, oral or electronic form. The concrete components of the respective assignment and the skills that are to be tested by it are listed in the module description. The number of practical assignments can be up to 10.
Type of examination:			
SchrP	Written examination	written	Written examination for testing a desired skill profile within a specified time frame, with the specified tools and under supervision. It can also be carried out as an online examination. A module examination usually takes 90 minutes. If need be, a written examination can be replaced by a student research project.
mdIP	oral examination	oral	An oral examination is a time-limited examination interview to test the desired skill profile through questions that need to be answered concretely. Oral exams can be carried out as individual or group exams. They last 15-20 minutes per person.
PStA	Written assignment	written	The desired skill profile is tested by means of a written assignment with a specified task, which must be completed within a defined time using suitable instruments. The written assignment is a term paper without an oral presentation. A term paper is a text document of about 8 to 15 pages or a presentation document of about 15 to 20 pages.
PrA	Project work	written oral pract.	The desired skill profile is tested by means of a project work with a specified task, which must be completed within a defined time in several phases and using suitable instruments. The project work is normally group work in which several students work as a team on a common task that is assigned to them and then present the results orally and/or in writing. Each student is required to contribute individually to the common task. The oral presentation lasts for 10 - 20 minutes, while the written part comprises about 5 - 25 pages. The written part of programming tasks, design projects, etc., comprises 3 - 10 pages.
PrB	Internship report	written	The internship report is a written document that serves to reflect on the practical professional phase carried out outside the university with reference to the university studies. This comprises a maximum of 20 pages.
MA	Master's thesis	written	The aim of the written, final thesis in the master's programme is to provide evidence that the student is able to work on a task arising from his/her programme, within a specified period of time, independently and based on scientific methods: Maximum processing period (time between registration for the master's thesis and submission) of 6 months / 50-70 pages. The thesis can be expanded by an appendix, if necessary. The effort required (workload) is derived from the ECTS credits awarded.

Issued based on the decision by the Senate of Deggendorf Institute of Technology dated 17 June 2020, the approval of the Bavarian State Ministry for Science and the Arts of 09 November 2020, Ref. No. H.6- H3441.DE/73/8 and the approval based on the legal supervision of the Vice President of Deggendorf Institute of Technology dated 10 November 2020.

Signed by
Prof. Waldemar Berg
Vice President Deggendorf

These by-laws were issued by Deggendorf Institute of Technology on 10 November 2020 and posted on the notice boards on 10 November 2020. The date of announcement is therefore 10 November 2020.