

Important note: The Artificial Intelligence for Industrial Applications master programme is legally regulated by the "Studien- und Prüfungsordnung" (Study and Examination Regulations). This document is a legally non-binding translation of the study and examination regulations.

Study and Examination Regulations
for the Full-Time Master Program Artificial Intelligence for
Industrial Applications and the Part-Time Master Program
Artificial Intelligence for Industrial Applications
at the OTH Amberg-Weiden
(convenience translation)

translated on the 21th of april 2023
from original document published on 16th of february 2023

(for these study and examination regulations the General Study and Examination Regulations (ASPO) of
the OTH Amberg-Weiden dated 27.05.2020)

Based on Art. 13 Para. 1 Sentence 2, Art. 43 Para. 5, Art. 58 Para. 1 Sentence 1, Art. 61 Para. 2 Sentence 1 and Para. 8 of the Bavarian Higher Education Act of May 23, 2006 (GVBl p. 245, BayRS 2210-1-1-WK), as amended, the OTH Amberg-Weiden issues the following statutes:

§ 1

Purpose of the Study and Examination Regulations

These Study and Examination Regulations serve to fill out and supplement the Framework Examination Regulations for Universities of Applied Sciences in Bavaria (RaPO) of October 17, 2001 (GVBl p. 686) and the General Study and Examination Regulations (ASPO) of the Eastern Bavarian University of Applied Sciences Amberg-Weiden of May 27, 2020, as amended.

§ 2

Study Goal

- (1) ¹The objective of the Master's degree program is to enable students to act and to independently and autonomously learn and apply scientific knowledge and methods in the fields of Artificial Intelligence (AI), Machine Learning (ML) as well as Data Analytics (DA) in the areas of image, speech, sensor signal processing as well as pattern recognition. ²They are aware of the steps leading to

successful classification or regression and can independently analyze, prepare, and process data in new application areas using AI and ML methods. ³They can interpret and improve the results of AI and ML algorithms and place them in the context of the application. ⁴Students learn to know different cultures and improve their social skills and language skills through international exchange.

- (2) ¹The graduates should be enabled to act in a problem-solving, responsible, scientific and economic manner by means of methodical, analytical and technical competence with increased scientific demands. ²They are qualified to work on application or research-oriented tasks and projects in a scientifically sound and largely independent manner. ³They have learned to define goals, to develop knowledge independently and, in addition, to reflect systematically and critically on the possible social, economic and ethical effects of their activities and to incorporate them responsibly into their actions. ⁴Furthermore, they can place the effects of their actions and procedures in a social and ethical context.
- (3) ¹The interdisciplinary competencies gained enable graduates to work on or manage complex projects. In doing so, they are competent contact persons for other disciplines. ²During their studies, graduates engage in intercultural exchange with each other and thus gain valuable experience for their work in international business. ³They learn how to deal with English in a business-fluent manner. ⁴They thus meet the requirements of international business and are prepared to take on responsibility and management tasks.
- (4) The competencies acquired in the Master's program in Artificial Intelligence can serve as a basis for further scientific qualification in a subsequent doctoral program or enable work in scientific institutions.

§ 3 Program Profile

The Artificial Intelligence for Industrial Applications Master's degree program is a consecutive Master's degree program with an application-oriented and scientific profile.

§ 4 Standard period of study, start and structure of the study program

- (1) The program is offered as a full-time program and part-time program with a standard period of study of three semesters as well as a part-time program with a standard period of study of five semesters, each with a total of 90 ECTS credits.
- (2) ¹The first semesters of study serve to convey theoretical content, which is deepened through material-accompanying internships and exercises. In addition, knowledge is expanded through elective modules. ²The last study semester serves to write the final thesis (Master Thesis).
- (3) ¹The modules of the 1st and 2nd semester (for full-time studies) or of the first 4 semesters (for part-time studies) are compulsory according to the annex to these study and examination regulations in the amount of 450 ECTS. ²In addition, modules totaling 1520 ECTS credits must be taken from an elective catalog.
- (4) The study program can be started in the winter as well as in the summer semester.

- (5) As an international study program, the study program is conducted in English.
- (6) Detailed information on the structure of the study program and the time schedule (study plan) can be found in the module handbook.

§ 5 Qualification requirements

- (1) Qualification requirements for admission to the master's program Artificial Intelligence for Industrial Applications are:
 - a. ¹A successfully completed university degree or an equivalent degree, the scope of which usually comprises 210 ECTS credits, but at least 180 ECTS credits. In addition to the courses of study in computer science, electrical engineering and information technology, mechatronics and digital automation, technical computer science, comparable computer science courses with a technical orientation are also considered relevant. ²The examination board decides on the relevance.
 - b. 1. proof of suitability for the specific course of study according to § 6
- (2) Graduates of a Bachelor's degree program with less than 210 (but at least 180) ECTS credit points are given the opportunity to make up the missing credit points with the help of the elective modules "Basic" of this degree program. ²The modules to be taken are usually part of the study and examination regulations of various degree programs- or of the English-language elective catalog in the currently valid version. ³In addition, proof of the missing credit points can also be provided through practical work experience that corresponds to the requirements of the practical study semester in the courses of study named in Paragraph 1. ⁴The missing competences must be proven within one year after commencement of studies. ⁵The board of examiners may determine the modules to be completed in detail. ⁶The general examination regulations of the OTH Amberg-Weiden shall apply with regard to the failure of modules and the possibility of repeating them.
- (3) ¹The university degree according to number 1 must have been completed with an overall examination performance of "good" or better (preselection). ²If a conversion of the overall grade is necessary due to deviating grading systems, this is done according to the so-called "modified Bavarian formula" in accordance with the specifications of the general study and examination regulations of the OTH Amberg-Weiden (ASPO). ³An applicant with a degree from a foreign university is recommended to submit a certificate of recognition of the degree issued by a certified institution (e.g. uni-assist) by the end of the application period. ⁴The decision on admission to the study program is made by the examination board.
- (4) ¹Applicants for the master's program who do not have an overall examination result at the time of the application deadline for the master's program, but who can demonstrate that they have successfully completed their first degree by the start of the master's program, will be admitted to the program on the condition that they provide the required evidence within two semesters after starting the master's program. ²The credible proof of graduation is provided by submitting a proof of grades (e.g. Transcript of Records), which certifies the completion of all study achievements required for the successful graduation.

- (5) 1A sufficient knowledge of the English language must be proven by a language certificate corresponding to level B2 according to the Common European Framework of Reference for Languages. 2This proof can be provided by a Cambridge Test with a score of 6, the Test of English for International Communication (TOEIC) with a score of at least 780, or equivalent proof, e.g. by corresponding modules in the degree certificate. 3Proof is not required if the university entrance qualification or the university degree was acquired in English.
- (6) Applicants who have neither a first degree nor the university entrance qualification in German must provide proof of sufficient knowledge of the German language in accordance with § 3 Para. 3 and Para. 5 of the statutes on the enrollment procedure of the East Bavarian Technical University.
- (7) 1Applications for admission to the Master's program for a course of study beginning in the summer semester must be submitted to the university by January 15, and for a course of study beginning in the winter semester by July 15 of the year in question. 2The university may extend these deadlines if necessary.
- (8) 1If applicants are not admitted, they will be informed of this in writing with a statement of reasons. 2A new application is only possible once and at the earliest in the following application period again.

§ 6

Proof of suitability for the study programme

The proof of program-specific aptitude is provided by completing the aptitude procedure in accordance with the framework statutes on the implementation of aptitude procedures for Master's programs at the OTH Amberg-Weiden.

- (1) The prerequisite for participation in the aptitude test is the submission of the required application documents in English in due form and time.
- (2) The application for participation in the aptitude test takes place at the same time as the application for admission to the program and must be submitted to OTH Amberg-Weiden by the application deadlines specified in the study and examination regulations.
- (3) A commission consisting of two full-time professors will be formed to carry out the aptitude test. The appointment of the commission is made by the Faculty Council.
- (4) Criteria for passing the qualifying procedure are:
 - a. 50% grade of the first degree. If a conversion of the overall grade is necessary due to deviating grading systems, this is done according to the so-called "modified Bavarian formula" in accordance with the specifications of the General Study and Examination Regulations of the OTH Amberg-Weiden (ASPO).
 - b. 20% Evaluation of specific aptitude based on an online Moodle test at OTH Amberg-Weiden with scores. In the online test, math and computer science skills are tested in equal parts. The test is considered passed if at least 50 out of 100 points are achieved in both subject areas.
 - c. 15% of the mathematics knowledge graded by the selection committee on the basis of previous knowledge in studies and profession, proven by curriculum vitae and degree

certificate. If a conversion of the overall grade is necessary due to deviating grading systems, this is done according to the so-called "modified Bavarian formula" in accordance with the specifications of the General Study and Examination Regulations of the OTH Amberg-Weiden (ASPO).

- d. 15 % of computer science knowledge graded by the selection committee on the basis of previous knowledge in studies and profession, proven by curriculum vitae and diploma. If a conversion of the overall grade is required due to deviating grading systems, this is done according to the so-called "modified Bavarian formula" according to the specifications of the General Study and Examination Regulations of the OTH Amberg-Weiden (ASPO).
- (5) Suitability shall be deemed to have been established if the suitability procedure is assessed with at least the overall grade (weighted average of para. 4 letters a), b), c) and d) "good" (2.5).
 - (6) A transcript of the procedure for determining the suitability for the specific course of study shall be prepared, showing
 - the name of the applicant
 - date and place
 - the names of the members of the selection committee involved
 - the evaluation of the criteria mentioned in paragraph 4,

²The minutes must be signed by the members of the selection committee.
 - (7) The applicant will be notified in writing of admission or non-admission no later than two weeks before the start of studies. ²Admission is only valid for the next possible enrollment date after the suitability procedure.
 - (8) Applicants who have completed their relevant first degree with an overall grade of "better than 1.3" or who demonstrably belong to the top 10% in the percentile rank of the degrees of their degree program are deemed to have proven their suitability for the specific degree program.
 - (9) If the applicant achieves the result "not passed" in the aptitude test, application is possible at a further date. A third application is excluded.

§ 7

Modules and certificates of achievement

- (1) ¹The modules, their ECTS points and number of hours, the type of courses as well as the examinations and course-related certificates of achievement are specified in Annex 1 to these Statutes. ²The corresponding regulations for the elective modules are specified in the module handbook.
- (2) ¹The learning objectives and contents of the compulsory modules are specified in the module handbook. ²The compulsory elective modules serve to deepen the content of the compulsory modules.
- (3) ¹There is no entitlement to all compulsory elective modules and elective modules being offered. ²Similarly, there is no entitlement to courses being held if there are insufficient participants.

- (4) 1Credit points shall be awarded for examinations and course-related performance records passed in a module. 2In accordance with the European Credit Transfer System (ECTS), an average of 60 credit points are awarded per academic year. 3One ECTS point usually corresponds to a working time of 30 hours.

§ 8

Study plan and module manual

- (1) 1In addition to the study and examination regulations, the Faculty of Electrical Engineering, Media and Computer Science shall prepare a module handbook and a study plan, which shall be adopted by the Faculty Council and published by the university. 2The announcement of new regulations shall be made at the latest at the beginning of the lecture period of the semester which they affect for the first time.
- (2) 1The modules as well as the associated study and examination achievements are described in the module handbook. 2The module manual contains in particular the following information on the individual modules:
- a. name/designation of the module (German/English)
 - b. Frequency of offering
 - c. ECTS points (incl. distribution of workload)
 - d. Lecturer/Module responsible
 - e. Admission requirements
 - f. Learning objectives
 - g. Course contents
 - h. course and examination achievements
 - i. Applicability in the further course of studies or university-wide.
- (3) 1The course of study is described in the study plan. 2The study plan contains the following information:
- a. Time sequence of the study, time sequence of the modules
 - b. number of attendance hours (SWS) per module
 - c. ECTS points per module
- (5) There is no right to claim that all scheduled elective and optional modules are actually offered.

§ 9

Master thesis

- (1) The prerequisite for registering for the Master's thesis and issuing a topic is that at least 45 ECTS points have been achieved by the student.

- (2) Registration for the Master's thesis and issue of the topic can take place at the earliest after completion of the examination period of the second (full-time) or fourth (part-time) semester and should take place at the latest in the first month of the third (full-time) or fifth (part-time) semester.
- (3) 1The processing time for the Master's thesis is six months. 2The Examination Committee may, upon application, grant an appropriate grace period if the processing time cannot be met due to illness or other reasons for which the student is not responsible. 3The grace period should not exceed two months.
- (4) The Master's thesis must be written in English.

§ 10

Assessment of examination performance and overall examination grade

- (1) For each module that has been evaluated with at least the grade "sufficient" as well as for the Master's thesis that has been evaluated with at least the grade "sufficient", the ECTS points according to Annex 1 are awarded in full.
- (2) The overall examination grade is calculated as the arithmetic mean of the final grades of the individual modules in the appendix of these study and examination regulations, weighted according to the credit points, and the correspondingly weighted grade of the Master's thesis.
- (3) The Master's examination is successfully completed if at least the grade "sufficient" has been achieved in all modules and in the Master's thesis.

§ 11

Certificate, documents and academic degree

- (1) On the basis of the successful completion of the study program, the academic degree of "Master of Science", "M.Sc." in short is awarded.

§ 12

Examination board

The examination board responsible for the study program is the examination board of the Faculty of Electrical Engineering, Media and Computer Science with a chairing member and two additional members appointed by the Faculty Council.

§ 13
Entry into force

These study and examination regulations shall come into force with effect from 01.10.2023 and shall apply to students who commence their studies in the winter semester 2023/2024 or later.

Amberg,

Prof. Dr. Clemens Bulitta
president

CONVENIENCE TRANSLATION

Appendix 1: Study plan and forms of examination

1 nbr	2 Module	3 SWS	4 Type of course	5 Module Exam	6 ECTS
1	AI basics vision & robotics (available in summer)				
1.1	Deep Learning	4	SU/Ü	Kl 90	5
1.2	Computer vision and AI	4	SU/Ü	PrA	5
1.3	Autonomous robots	4	SU/Ü	PrA	5
2	AI basics data and language (available in winter)				
2.1	Machine learning	4	SU/Ü	PrA	5
2.2	Modern Databases and NoSQL	4	SU/Ü SEM	PrA	5
2.3	Natural language processing and information retrieval	4	SU/Ü SEM	PrA	5
3	AI Applications				
3.1	AI project	4	ASt	PrA	5
3.2	Interdisciplinary topic	4	SU/Ü	Kl 90 oder PrA oder Präs oder SemA oder LPort ⁽¹⁾	5
3.3	Optional module from catalogue "Basic" ⁽¹⁾	4 ⁽³⁾	SU/Ü	Kl 90 oder PrA oder Präs oder SemA oder LPort ⁽¹⁾	5 ⁽³⁾
3.4	Optional modules from catalogue "Advanced" ⁽¹⁾ (2 modules of 5 ECTS each)	8 ⁽³⁾	SU/Ü	Kl 90 oder PrA oder Präs oder SemA oder LPort ⁽¹⁾	10 ⁽³⁾
4	Scientific training				
4.1	AI conference	4	SEM	Sem	5
4.2	Scientific writing	2	SEM	Präs	2
4.3	Master thesis	0	MA	MA	28

¹⁾ Program-specific elective modules:

Each of these is a module group with several elective modules, for each of which ECTS points are acquired upon successful completion of the respective module. In total, the ECTS points defined in the SPO must be acquired for each group.

Elective modules for teaching subject/methodological competences have a close subject-related connection to the study program and serve to acquire subject and methodological competences in selected areas (cf. HQR of 16.02.2017).

Elective modules for teaching social/self-competencies serve to convey and deepen interdisciplinary competencies and qualifications (cf. HQR dated 16.02.2017).

The detailed qualification objectives of the elective compulsory modules result from the respective module descriptions.

2) Module examinations can be supplemented via a bonus system on a voluntary basis (see General Study and Examination Regulations (ASPO) of OTH Amberg-Weiden).

3) Total SWS and ECTS for the study program

CONVENIENCE TRANSLATION

Appendix 2: Confirmation of suitability for the course of study

(Original form, not intended to be translated)

Bewertungsschema für Eignungsverfahren nach §6

BewerberIn Name, Vorname _____

Studiengang Vorstudium (optional) _____

Bewertung Eignungsverfahren

Kriterium	Note	Anmerkung
Abschlussnote Vorstudium		
Online-Test, Kompetenzfeld "Mathematik"		
Online-Test, Kompetenzfeld "Informatik"		
Note für Kompetenz "Mathematik" auf Basis von Lebenslauf/Abschlusszeugnis		
Note für Kompetenz "Informatik" auf Basis von Lebenslauf/Abschlusszeugnis		

Durchschnittsnote

Zulassung möglich? ja
 nein

Amberg/Weiden, den _____

Unterschrift Auswahlkommission

COI