Fakultät
für Informatik

Technische
Hochschule
Rosenheim
Technical University of Applied Sciences

Descriptions and regulations for the Bachelor's degree programme
Applied Artificial Intelligence (SPO 2021) winter semester 2023/24

These descriptions and regulations are intended to provide an overview of the most important regulations and their current design. It applies to all students who begin their studies from the winter semester 2021/22 and is based on the Study and Examination Regulations of 14.07.2021 and the General Examination Regulations of Rosenheim Technical University of Applied Sciences in their current version. In all cases of doubt, the provisions of these regulations apply (cf. section 8, References).

1. Study/Subject semester
In the Study and Examination Regulations, the terms "study semester" and "subject semester" are used as follows:
- Study semester: Semester according to the programme overview or the semester to which a course is assigned according to the programme overview (cf. also the overview in section 10).
- Subject semester: The semester in which a student has been enrolled in the current degree programme. Please note that the subject semester may differ from the number of semesters actually studied in this degree programme (e.g. if modules from a previous degree programme have been credited).

2. Admission requirements
For this degree programme, you have to prove that you have sufficient knowledge of English. In addition, proof of German language proficiency is required. The certificates must be received at the TH Rosenheim by the time of enrolment (for the deadline, see the notification of admission). Below you will find an overview of all admissible language certificates. With this proof, you fulfil the minimum requirement for admission. For a successful degree, however, it may be necessary to further expand and deepen your own language skills.

1) The qualification requirement for the degree programme is English proficiency at level B2 of the Common European Framework of Reference for Languages (CEFR). This can be proven in particular by:
   1. internet-based TOEFL with 72 points or more,
   2. IELTS with band 6.0 or higher,
   3. Cambridge CEFR B2 First (FCE) with Grade C or better,
   4. Cambridge CEFR C1 Advanced (CAE) with level B2 or higher,
   5. at least 6 years of English language instruction at school with at least the grade "sufficient" in the final year, proven by a German higher education entrance qualification or an equivalent, recognised higher education entrance qualification from a non-German school.
Applicants whose native language is English are - not required to demonstrate sufficient English language skills. In cases of doubt or if no proof is available, the passing of a language test at the TH-Rosenheim comparable to the above-mentioned proofs may be required in addition or as a substitute.

2) If German is not the native language and no German university entrance qualification is available, proof of German language skills at level A2 or higher according to the CEFR must be provided. The following certificates will be accepted:
   1. German language diploma DSD level 1 (level CEFR A2/B1),
   2. Goethe certificate of level A2,
   3. TELC certificate of level A2,
   4. passed German courses at a higher education institution amounting to at least 4 ECTS credits at level A2 or higher according to the CEFR,
   5. at least 3 years of German lessons at school, proven by an officially certified translation of the certificates.

3) The examination board decides on the fulfilment of the admission requirements.

3. Structure of the study programme

The Bachelor's programme *Applied Artificial Intelligence* has a standard period of study of seven semesters. It comprises six theoretical semesters and one practical semester that is relevant to the profession. The practical study semester is conducted as the 5th study semester. The programme ends in the 7th semester with the Bachelor's thesis. The language of instruction in this degree programme is English.

The following regulations must be observed:
1. The examinations in the modules "*Programming Basics,*" "*Computer Science Fundamentals,*" and "*Analysis 1*" must be taken by the end of the 2nd semester. If this deadline is exceeded, the associated examinations shall be deemed to have been taken for the first time and not passed.
2. Modules assigned to the 3rd study semester or higher may only be taken by those who have achieved at least 30 credit points (CP).
3. At least 30 CP must have been achieved by the end of the 3rd semester. If this is not the case, all examinations not taken so far shall be deemed to have been taken and finally not passed. The degree programme is thus terminated.
4. Modules assigned to the 5th semester or higher (incl. the practical study semester) may only be taken by those who have achieved at least 80 CP.
5. Students who have successfully completed the practical study semester and have achieved at least 160 CP may begin the bachelor's thesis.
6. All modules (i.e. also FWPM and the Bachelor's thesis) in which no examination has been taken by the end of the 9th semester shall be deemed to have been taken for the first time and not passed from this point on.
7. The module "*Practical Software Engineering*" (No. 22) can only be taken by those who have successfully completed the examination in "*Software Engineering*" (No. 16) and the supervised practical phase of the practical study semester "*Internship*" (No. 31).
8. Only those who have attended "*Internship Seminar Part 1*" (No. 29) are entitled to enter the supervised practical phase "*Internship*" (No. 31).
9. Only those who have attended "*Internship Seminar Part 1*" (No. 29), have completed the supervised practical phase "Internship" (No. 31) and have submitted the practical report are entitled to participate in "*Internship Seminar Part 2*" (No. 30).

The allocation of courses to the study semesters can be seen in the chart in section 10.

4. Subject-specific compulsory elective modules (FWPM)

Each student must select a total of 20 CP modules from the FWPM catalogue. The current teaching contents and study objectives of the FWPM offered in this semester can be found in the module handbook (cf. section 8, References). The recognition of further modules as FWPM (e.g. in the case of semesters abroad or from other degree programmes) is possible upon application if the content is suitable; it is recommended to contact the subject advisor in advance in case of doubt.

The examinations taken first are binding for the Bachelor's examination, unless they were explicitly marked as elective modules on the list of participants for the examination. All further examinations then automatically count as elective modules.

The FWPM election usually starts 2 to 3 weeks before the beginning of the respective semester. The exact period will be announced in time. The choice is binding. However, it does not include the registration for examinations.

FWPMs only take place if the minimum number of participants of 10 is reached. The maximum number of participants is limited to 20. Modules from the Master's programme may not be selected in the Bachelor's programme.

5. Practical study semester / Internship

The practical semester is conducted in the 5th semester. Only students who have achieved at least 80 CP are entitled to enter the practical semester. It comprises a supervised practical phase of 18 weeks, which must be completed in relevant companies, and is supplemented by practical courses. Only students who have attended the module "Internship Seminar Part 1" are entitled to enter the supervised practical phase. It is successfully completed if the required practical periods with the prescribed contents are proven by a certificate from the training centre that corresponds to the model provided by the university and a proper practical report has been submitted.

The practical phase can only be waived in exceptional cases. The minimum requirement is a relevant, predominantly related professional activity of at least two years' duration or a completed, relevant apprenticeship. Further information can be found in the information sheet "Detailed information on the practical semester", see references.

The modules "*Internship Seminar Part 1 & 2*" (No. 29 and No. 30) are accompanying the practical semester. "*Internship Seminar Part 1*" takes place after the examination period of the summer semester, "Internship Seminar Part 2" at the end of the winter semester. The examinations take place during "*Internship Seminar Part 2*" (all dates for "*Internship Seminar Part 1 & 2*" according to the notice board).

6. Examinations

In order to take part in all examinations, students must register (electronically) on time via the Examinations Office. Non-attendance at the examination counts as an effective withdrawal - except in the case of repeat examinations and examination papers. In the above-mentioned special cases, withdrawal is only possible in justified cases via an application to the examination board.

Failed examinations must be repeated after each semester. If the examination can only be passed by taking part in a course which does not take place in the following semester, the repeat examination must be taken by the end of the semester following the following semester. A new registration is required for all repeat examinations.

7. Bachelor's thesis

The prerequisite for the application for the issue of a Bachelor thesis topic is the successful completion of the practical study semester and the achievement of at least 160 CP. The Bachelor thesis must be registered via the online system of the university (cf. section 8, References) and submitted no later than five months after registration (it should be noted that the deadline stated in section 3 point (6) has priority here). The expected processing time is approximately two months (full-time). The start of processing may not be before the registration. A colloquium is also included in the assessment of the thesis. At least one of the two examiners must be a full-time professor of the Faculty of Computer Science or the Faculty of Applied Natural Sciences and Humanities at Rosenheim University of Applied Sciences. The Bachelor's thesis can be written in German or in English and must contain an abstract in German. It must be submitted to the examination office in accordance with the regulations of the General Examination Regulations. The Bachelor thesis must be presented and defended orally within 30 minutes. The provisions on oral examinations in §16 of the General Examination Regulations shall apply accordingly to the defence. The presentation takes place within the framework of the module "*Bachelor's Thesis Seminar*" (Module No. 27). If it will be assessed with the grade "not sufficient", it can be repeated once with a new topic.

8. References

General Examination Regulations:
https://www.fh-rosenheim.de/home/infos-fuer/studierende/studienorganisation/formalia/studienregelungen/studien-und-pruefungsordnungen/

Study and Examination Regulations, FWPM List:
https://www.th-rosenheim.de/fileadmin/formalia/SPOs/AAI/LF_AAI_B_SPO_20212.pdf
https://www.th-rosenheim.de/fileadmin/formalia/SPOs/AAI/LF_AAI_B_SPO_20212_EN.pdf

Module handbook:
https://www.th-rosenheim.de/fileadmin/fakultaeten/inf/02_Dokumente/Dok_AAI-B-spezifisch/AAI_Bachelor_Modulhandbuch.pdf

Information on the Practical Semester:
https://www.th-rosenheim.de/die-hochschule/fakultaeten/fakultaet-fuer-informatik/informationen-fuer-studierende/praxissemester

Thesis:
https://www.th-rosenheim.de/studium-und-weiterbildung/im-studium/studienorganisation/abschlussarbeiten

9. Faculty management and counselling

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Chairman of the Examination Commission:	Prof. Dr. Kai Höfig
Subject Advisory Guidance:	Prof. Dr. Wolfgang Mühlbauer

10. Programme overview

1st Semester		2nd Semester		3rd Semester		4th Semester		5th Semester		6th Semester		7th Semester	
Winter		Summer		Winter		Summer		Winter		Summer		Winter	
SWS 26	CP 31	SWS 26	CP 32	SWS 22	CP 27	SWS 24	CP 30	SWS 4	CP 30	SWS 24	CP 29	SWS 15	CP 31

1st Semester (Winter)
- Programming Basics (6 / 7)
- Computer Science Fundamentals (6 / 7)
- IT Systems (4 / 5)
- Introduction to AI Part 1 (2 / 2)
- Analysis 1 (8 / 10)

2nd Semester (Summer)
- Object-Oriented Programming (4 / 5)
- Theoretical Computer Science (4 / 5)
- Introduction to AI Part 2 (4 / 5)
- Linear Algebra (6 / 7)
- Analysis 2 (4 / 5)
- Digital Business Models (4 / 5)

3rd Semester (Winter)
- Database Systems (6 / 7)
- Unsupervised and Reinforcement Learning (4 / 5)
- Supervised Learning (4 / 5)
- Stochastics (4 / 5)
- Numerical Methods and Optimization (4 / 5)

4th Semester (Summer)
- Software Engineering (4 / 5)
- IT Security (4 / 5)
- Neural Networks and Deep Learning (4 / 5)
- Data Science (4 / 5)
- Project Management (4 / 5)
- Computer Law & Ethics for Artificial Intelligence (4 / 5)

5th Semester (Winter)
- Internship Seminar Part 1 (2 / 3)
- Internship 18 weeks (0 / 24)
- Internship Seminar Part 2 (2 / 3)

6th Semester (Summer)
- Practical Software Engineering (6 / 7)
- Embedded Artificial Intelligence (4 / 5)
- Speech Recognition and Sequence Learning (6 / 7)
- FWPM (8/10)

7th Semester (Winter)
- Computer Vision (6 / 7)
- FWPM (8 / 10)
- Bachelor's Thesis (0 / 12)
- Bachelor's Thesis Seminar (1 / 2)

Legend

Modul (SWS / CP) — CP

- CP — Credit Points
- BA — Bachelor's Thesis
- SWS — Semesterwochenstunden ≙ contact hours

- Artificial Intelligence
- Computer Science
- Mathematics
- Compulsory Elective Modules
- Internship and Bachelor's Thesis
- Core Competencies / Soft Skills

Stand: 23.04.21