Qualification Goals

Bachelor Artificial Intelligence

Faculty Computer Science

of the Deggendorf Institute of Technology

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Gender neutrality

The use of double forms or other markings of female, male and diverse gender is largely avoided in order to maintain legibility and clarity. All titles for the various groups of members of the university refer equally to members of all genders of the groups concerned.

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1 Qualification goals

The highest priority of the competencies to be acquired in the bachelor's degree programme Artificial Intelligence is the technical knowledge in the areas of data, analysis and technology as well as the ability to apply and expand this knowledge to a wide variety of tasks. Students will be able to develop, master and adapt artificial intelligence systems. In addition, students will be able to represent the acquired technical competencies fluently in English. Foreign students will also learn the foundations of the German language as a basis for a successful professional life in Germany.

2 Learning outcomes of the programme

Table 1 assigns learning outcomes to the study objectives in the Artificial Intelligence bachelor's degree programme.

Table 1: Learning outcomes in the bachelor's degree programme Artificial Intelligence	
1. Foundations of the most important subfields of mathematics and computer science	Knowledge: Students know basic mathematical and computer science concepts and methods.
	Skills: Based on the knowledge and methods, students can professionally analyze problems and develop adapted solutions.
	Competencies: The essential methods of mathematics and computer science can be applied.
2. Competencies in data, analysis and technology	Knowledge: General fundamentals are specialized in the field of Artificial Intelligence.
	Skills: Problems in the field of artificial intelligence can be analyzed and evaluated. Artificial intelligence methods can be applied to new problems.
	Competencies: Problems concerning the development of artificial intelligence can be analyzed.
3. Applications of AI systems	Knowledge: General fundamentals are specialized in various application areas.
	Skills: Problems in the various application areas can be analyzed and evaluated. Artificial intelligence methods can be applied to new problems in the application areas.

	Competencies: Problems for the development of AI systems in the application areas can be analyzed.
4. Interdisciplinary competencies	Knowledge: The economic, legal, and ethical frameworks for the development and use of AI systems will be recognized.
	Skills: Students are able to create their own opinion and present it in an understandable way using English technical language.
	Competencies: Qualified influence on the development of new AI systems in compliance with the various frameworks. Processing of technical tasks in the English language in a team.

3 Learning outcomes of modules / module objectives

The individual modules, their detailed objectives and the competencies to be acquired by the graduates are described in the module handbook for the bachelor's degree programme Artificial Intelligence. There, the modules are listed in the order of the module number of the respective study and examination regulations (StPrO).

In Table 2, the connection between the individual modules and the learning outcomes in the bachelor's degree programme Artificial Intelligence described in the previous section is established.

Table 2: Matrix of objectives of the modules in the bachelor' degree programme Artificial Intelligence

Module	Objectives											
	Knowledge				Skills				Competencies			
	Foundations	Technology competence	Applications	Soft skills	Foundations	Technology competence	Applications	Soft skills	Foundations	Technology competence	Applications	Soft skills
1. Semester												
Mathematics 1	xx				xx				x			
Programming 1	xx				xx				xx			
Foundations of Computer Science	xx				xx				xx			
Operating Systems and Networks	xx				xx				x			
Introduction to Artificial Intelligence		xx				xx				xx		
Key Competencies 1 (Media Skills and Self Organization, Business Administration)				xx				xx				x
2. Semester												
Mathematics 2	xx				xx				x			
Programming 2	xx				xx				xx			
Algorithms and Data Structures	xx				xx				xx			
Internet Technologies	xx				xx				x			
Computational Logic		xx				xx				x		
Key Competencies 2 (Foreign Language: German or English)				xx				xx				x
3. Semester												
Databases	xx				xx				x			
Statistics	xx				xx				x			
Project Management	x				xx				xx			
Assistance Systems			xx				xx				x	
AI Programming		xx				xx				x		
Key Competencies 3 (Technology Ethics and Sustainability, Academic Writing) or German				xx				x				x
4. Semester												
Natural Language Processing		xx				xx				x		
Human Factors and Human-Machine Interaction			xx				xx				x	
Machine Learning		xx				xx				xx		
Computer Vision		xx				xx				xx		
Software Engineering	xx				xx				x			
Key Competencies 4 (Compliance, Data Protection and IT Law) or German				xx				xx				x

6. Semester												
Seminar Current Topics in AI			xx				xx				x	
Autonomous Robotics			xx				xx				x	
AI Project			xx				xx				xx	
Deep Learning/Big Data		xx				xx				xx		
Key Competencies 5 (Team Building and International Communication, Entrepreneurship) or German				xx				x				x
7. Semester												
AI Applications 1			xx				xx				x	
AI Applications 2			xx				xx				x	

Legend: xx strong relation   x medium relation