AI COMP

Future skills for a world shaped by AI

LEARNING GOALS

NEXT EDUCATION

KI-Campus
Die Lernplattform
für Künstliche Intelligenz

DHBW
Duale Hochschule
Baden-Württemberg

Competence levels

The competence levels formulated below are levels that were formulated on the basis of Bloom's (1956) six-level taxonomy in the revision by Anderson & Krathwohl (2001).

They are examples of learning objectives that learners should be able to demonstrate in relation to the corresponding future skills.

Verbalised levels for two levels of the Bloom taxonomy are summarised below:

- **Level 1** therefore corresponds to levels 1 & 2 of the Bloom model by Anderson/Kratwohl,

- **Level 2** corresponds to Bloom levels 3 & 4,
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- **Level 3** corresponds to Bloom levels 5 & 6.

Activity and implementation competence

AI in professional behaviour:

Be proactive

Descriptions of learning goals

Level 1 - Knowledge and understanding:
Learners should be able to describe the basics of AI systems and identify different use cases of AI in their field of work.'

Level 2 - Application and analysis:
Learners should be able to apply AI systems to solve specific professional problems and analyse the results with colleagues.'

Level 3 - Synthesis and evaluation:
Learners should be able to develop innovative AI-based processes, evaluate their effectiveness and lead their team in the implementation of new AI strategies.'

Activity and implementation competence for AI in professional activities is expressed in the motivation to take the initiative to utilise AI for one's own context of action.

System-design competence

Designing AI systems

Descriptions of learning goals

Level 1 - 2 Remember & Understand - Apply & Analyse:
Learners should be able to name and explain the basic functions of AI systems and carry out simple analyses of the suitability of AI systems for specific work processes**.**

Level 3-4: Apply & Analyse - Evaluate & Design:
Learners should make critical evaluations of the suitability of different AI systems for their work and develop a plan to integrate an AI system tailored to the specific needs of their field of work.

Level 5-6: Evaluate & Design - Create:
Learners should be able to independently design an AI system tailored to the complex requirements of their specialised field of work and fully implement this system.

System design competence is the ability to develop concepts for one's own professional context.

Creative problem-solving competence (creativity)

Creatively solving problems with AI

Descriptions of learning goals

Level 1-2: Knowledge & Understanding - Applying & Analysing:
Learners should be able to describe the principles of creative AI systems and apply them in simulated situations to identify and solve standard problems.

Level 3-4: Apply & Analyse - Evaluate & Design:
Learners should be able to evaluate different AI-supported problem-solving strategies and develop their own approach to solving a complex problem involving both technical and human elements.

Level 5-6: Evaluate & Design - Create:
Learners should be able to create an original AI-based system that opens up and implements new ways of creative problem solving in their area of expertise.

Creative problem-solving skills are the ability to use AI systems for creative problem-solving, idea generation and vision development.

Critical digital competence

Be able to assess the benefits and challenges of technical applications

Descriptions of learning goals

Level 1-2: Knowledge & Understanding - Applying & Analysing:
Students should be able to explain the basic principles of AI systems and analyse their data processing mechanisms in the context of specific use cases.

Level 3-4: Apply & Analyse - Evaluate & Design:
Students should be able to critically evaluate how AI systems use data and the long-term impact this can have on the structure and ethics of organisations.

Level 5-6: Evaluate & Design - Create:
Students should be able to independently develop an ethical policy for the use of AI systems that integrates both technical capabilities and social responsibility.

Critical digital competence is the ability to critically assess technical AI systems and their effects.

Decision-making competence

Using AI in decision-making processes

Decision-making competence is the ability to use AI to weigh up alternative choices and make decisions.

Descriptions of learning goals

Level 1-2: Knowledge & Understanding - Applying & Analysing:
Learners should be able to identify different AI systems, understand their functions and make simple decisions based on AI suggestions.

Level 3-4: Apply & Analyse - Evaluate & Design:
Learners should be able to use AI systems effectively to evaluate complex scenarios and make informed decisions weighing up different options**.**

Level 5-6: Evaluate & Design - Create:
Learners should be able to develop autonomous AI systems that provide innovative solutions to industry-specific challenges and take responsibility for the outcomes of these systems.

Self-efficacy

Conviction that they can overcome AI-related challenges with their own skills

Self-efficacy means being confident in your own abilities and learning skills to overcome AI-related challenges.

Descriptions of learning goals

Level 1-2: Knowledge & Understanding - Applying & Analysing:
Learners should understand the basics of AI technology and be able to perform simple AI-supported tasks independently in their field of action**.**

Level 3-4: Apply & Analyse - Evaluate & Design:
Learners should be able to analyse and evaluate the suitability of AI systems for complex problems and develop appropriate strategies for action.

Level 5-6: Evaluate & Design - Create:
Learners should be able to develop innovative AI-based solutions that contribute significantly to solving complex challenges in their professional environment.

Critical thinking

Questioning how AI influences actions and decisions

Critical thinking is the ability to judge how AI influences actions and decisions.

Descriptions of learning goals

Level 1-2: Knowledge & Understanding - Applying & Analysing:
Learners should be able to identify AI systems, understand their functions and analyse simple effects on action decisions.

Level 3-4: Apply & Analyse - Evaluate & Design:
Learners should be able to make critical judgements about the application of AI in different scenarios and evaluate its impact on ethical and social structures.

Level 5-6: Evaluate & Design - Create:
Learners should be able to design independent research projects that investigate the impact of AI technologies on societal and individual decision-making processes and develop solutions to identified problems.

Active control competence

(self-control and self-management)

Descriptions of learning goals

Level 1-2: Knowledge & Understanding - Applying & Analysing:
Learners should be able to use AI systems for basic personal and professional tasks and plan their activities according to their Cognitive Load.

Level 3-4: Apply & Analyse - Evaluate & Design:
Learners should be able to analyse, evaluate and customise different AI systems to increase their efficiency in professional processes.

Level 5-6: Evaluate & Design - Create:
Learners should be able to independently design complex AI-based projects that support and advance their personal and professional goals.

Active control means being able to independently adapt and use AI applications for your own personal and professional development.

Self-determination (autonomy)

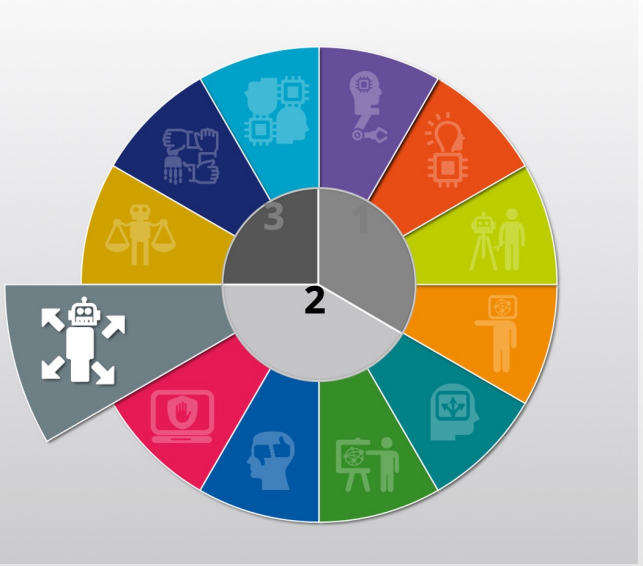
Self-determined action with AI

Descriptions of learning goals

Level 1-2: Knowledge & Understanding - Applying & Analysing:
Learners should be able to understand the principles and potential influences of AI on personal autonomy and consciously use simple AI tools in a way that promotes, rather than undermines, their self-determination.

Level 3-4: Apply & Analyse - Evaluate & Design:
Learners should be able to critically analyse and adapt complex AI systems to enhance their self-determination in different areas of life. They should be able to develop strategies that enable a balanced and self-determined use of AI.

Level 5-6: Evaluate & Design - Create:
Learners should be able to independently develop innovative and self-determined AI solutions that not only support their personal and professional goals, but also strengthen their autonomy and freedom of choice in an AI-driven world.’



Self-determination refers to the ability to act in a self-determined manner in relation to suggestion and decision-making processes with and through AI applications.

Ethical competence

Ethical awareness of AI-related issues

Descriptions of learning goals

Level 1-2: Knowledge & Understanding - Applying & Analysing:
Learners should be able to recognise and describe ethical dilemmas associated with AI applications.

Level 3-4: Apply & Analyse - Evaluate & Design:
Learners should be able to analyse and evaluate the ethical implications of different AI applications in order to make responsible decisions.

Level 5-6: Evaluate & Design - Create:
Learners should be able to develop and implement independent ethical guidelines for the use of AI that reflect both personal and organisational responsibility.

Ethical competence refers to the ability to deal ethically with AI-relevant topics and to act responsibly.

Cooperation competence

Working together with others on AI projects

Descriptions of learning goals

Level 1-2: Knowledge & understanding:
Learners can name the basic principles of AI systems and describe their role in different collaborative contexts.

Level 3-4: Apply & Analyse:
Learners can apply knowledge of AI systems to develop effective collaboration strategies and analyse the dynamics between team members from different domains.

Level 5-6: Evaluate and Create:
Learners can critically evaluate collaboration processes and develop innovative solutions to complex interdisciplinary challenges using AI technologies.

Cooperation skills include the ability to implement AI projects in cross-departmental/interdisciplinary transformation processes.

Communication competence

Formulate and discuss specific AI topics

Communication competence refers to the ability to communicate with others on AI-related topics.

Descriptions of learning goals

Level 1-2: Knowledge & understanding:
Learners should be able to describe the basic principles of AI and name typical use cases.

Level 3-4: Apply & Analyse:
Learners should be able to analyse the impact of different AI technologies on society and communicate their views clearly.

Level 5-6: Evaluate & Create:
Learners should be able to design a strategy that effectively integrates and communicates different views on ethical aspects of AI.’