

# Guidelines for the use of AI tools in scientific work at the Department of Mechanical Engineering

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## 1 Introduction

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Artificial intelligence (AI) can provide valuable support for academic work and studies. However, it is important to use it responsibly and ethically. These guidelines are intended to help members of the Department of Mechanical Engineering to integrate AI tools into the academic process in a meaningful and fair way. In principle, lecturers/examiners are entitled to set individual guidelines on the use of AI for each course/examination they supervise, provided that these do not contradict the basic rules of the TU Darmstadt or the department-specific regulations. Teachers must inform students of these guidelines at the beginning of the semester, but no later than the start of the registration period for the examination/research paper. This applies equally to the academic work of students and doctoral candidates. This short guide is intended to provide an initial brief overview of important aspects.

AI tools can help with research, data analysis and writing texts, among other things. However, they should not be used to replace your own intellectual performance. The use of appropriate AI tools should be seen as a support and not as a substitute for your own work.

AI tools include, among others:

- ChatGPT, DeepSeek, Gemini (e.g. research, text creation, summaries, learning aid, feedback)
- Elicit (e.g. literature research)
- DALL-E (e.g. image generation)
- GitHub Copilot (e.g. programming)
- DeepL (e.g. translation, typing assistance)
- Grammarly (e.g. spelling and grammar check, writing assistance)



- Links to further overviews with AI tools can be found on the [e-learning websites](#).

If you are planning to use an assistive tool and are unsure whether it counts as an AI tool and whether its use is permitted, clarify this with the examiner.

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## 2 Legal and ethical principles

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The department generally recommends that AI tools should only be used with caution, in compliance with the rules of good scientific practice and within the framework specified by the **General Examination Regulations** (APB) when preparing written work such as project papers and theses or for other examinations. The specific recommendations resulting from this are explained in chapter 3 and illustrated with examples.

**Responsibility for the content of one's own work:** The authors are responsible for the content of their work. AI output may contain incorrect or superficial information. Therefore, check the output using your own knowledge or other sources.

**Labeling AI-generated passages:** In scientific texts, it must always be clear what comes from the authors themselves and what has been taken from other sources. All AI-generated content must be properly labelled. The direct adoption of texts without appropriate labeling is considered an attempt to deceive.

**Copyright and unknowing plagiarism:** According to current case law, AI output itself is not protected by copyright. However, AI output may contain intellectual property of authors without citing the source. If you use this AI output in your work, you may be unknowingly plagiarising. AI output should therefore be checked against scientific sources, such as books and specialist articles, to avoid copyright infringements.

**Transparency:** If AI is used in the creation of work, this should be made transparent. For example, a footnote or appendix could explain how, for what purpose and to what extent AI was used.

**Originality:** In scientific work, it must be ensured that the focus is on your own analytical and critical work and that the AI only takes on supporting tasks.

**Data protection:** AI providers may use the data entered. No personal or sensitive information should be entered for your request (=prompts). If unpublished scripts or text passages are uploaded to AI tools without permission, e.g. by lecturers or fellow students, their copyrights are usually infringed. This may also include documents uploaded to Moodle, as these are not publicly accessible and therefore do not count as a publication. Particular caution is also required with regard to non-disclosure agreements.

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## 3 Recommendations

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**Be aware of your responsibility:** Content created by AI tools is as much your responsibility as the rest of your work. In addition to formal and content-related responsibility, this also means/includes ethical responsibility.

**Clarification with the supervisors of the scientific work:** The use of AI should meet the requirements of the task and not represent any impermissible shortcuts in the learning process. Before

starting the work, agree on which AI tools may be used in which form and how they are to be labelled in the work.

**Independently question whether the tool is permissible:** If the tool does what you are supposed to do, then it is probably not permissible. For example, you should not have a text-generating AI create complete paragraphs of text for your written paper.

**Question content:** AI tools can generate incorrect content, e.g. by inventing false facts, justifications or sources. For this reason, you should always ensure that the content generated is correct. You should also check the content created by AI tools for plagiarism.

**Labeling of content:**

Please clarify with the examiner in which form the content should be marked.

You can find detailed guidelines from the University and State Library on how to mark AI-generated content [here](#). For example, the labelling according to the Modern Language Association is mentioned there:

Scheme	"Prompt", [AI tool], [version], [AI tool provider], [date], [link to AI tool or call history].
Example 1	"What is the surface tension of water?", ChatGPT, 4o, OpenAI, 21.05.2025, <a href="https://openai.com/index/chatgpt/">https://openai.com/index/chatgpt/</a>
Example 2	"Draw a schematic of a rolling bearing", ChatGPT, 4o, OpenAI, 21.05.2025, <a href="https://openai.com/index/chatgpt/">https://openai.com/index/chatgpt/</a>

Examples of very concise labels could look like this:

- "This thesis was written independently and linguistically revised with the help of Grammarly/ChatGPT".
- "The code used in the work was partly created with the help of ChatGPT/GitHub Copilot. The program parts generated in this way are marked within the inline comments."
- "Elicit was used to identify relevant scientific articles and automatically summarise their abstracts."



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## 4 Further information

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ULB guidelines on the labeling of AI generators	<a href="#">LINK</a>
Workshop offer for students on the topic of "Writing and AI at university"	<a href="#">LINK</a>
Overview of the University Didactics Center (HDA) on AI tools in the <i>AI Tools &amp; Current Developments</i> section at the bottom of the page	<a href="#">LINK</a>
Videos, explanations, suggestions and links to further collections of links on the topic of AI in teaching	<a href="#">LINK</a>
Courses and exchange formats on various aspects of teaching and working with AI tools (for students and teachers)	<a href="#">LINK</a>

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## 5 Appendix: Audit law principles

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The following provisions of the **General Examination Regulations (APB)** are particularly relevant for the use of AI aids in the preparation of project work and theses from an examination law perspective:

APB §22 (7):

" In written papers (schriftliche Arbeiten – such as seminar paper, homework assignment, project work) and theses (Abschlussarbeiten) completed without proctoring/monitoring (ohne Aufsicht), the candidates must identify all sources used, including sources found on the Internet, and any other aids used [...]"

APB §38: Cheating and administrative offenses

"(1) If candidates are found to have attempted or committed a deception or an administrative offence during an examination, the examination is to be declared "insufficient" [...].

(2) An attempt to deceive will also be deemed to have been made if a false declaration has been made in accordance with Sections 22(7) [...]

(3) Candidates who do not follow the instructions regarding working materials and aids or are otherwise guilty of deception will be excluded from further participation by decision of the examiners [...]"

Note: AI aids are to be understood as aids within the meaning of §22 (7) APB and must therefore always be labelled as such in the references of a written paper.

In addition, the general principles and information on documentation requirements set out in the statutes on the **principles for safeguarding good scientific practice** must be observed:

§1 Commitment to the general principles

"(1) The Technische Universität (TU) Darmstadt defines the rules for good scientific practice and is committed to their principles. These include, in particular, working *lege artis*, i.e. in accordance with the method, maintaining strict honesty with regard to one's own and third parties' contributions, consistently scrutinizing all results oneself and allowing and promoting critical discourse in the scientific community. [...]"

§12 Documentation

"(1) Researchers at TU Darmstadt shall document all information relevant to the production of a

research result in such a comprehensible manner as is necessary and appropriate in the subject concerned in order to be able to review and evaluate the result. [...] "

This guideline was adopted on 17 June 2025 by the Departmental Council of the Department of Mechanical Engineering.

