HSLU Lucerne University of Applied Sciences and Arts

Prompt Engineering (PROMPT)

HS25

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Information Technology

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FH Zentralschweiz

Week 1: Introduction to Prompt Engineering

Learning Goals:

1. Explain what a prompt is and why good wording matters.
2. Write prompts that fit a specific audience and purpose.
3. Specify the output you want.
4. Run a quick A/B test and describe what improved and why.
5. Identify one real use case where better prompting saves time or boosts quality.

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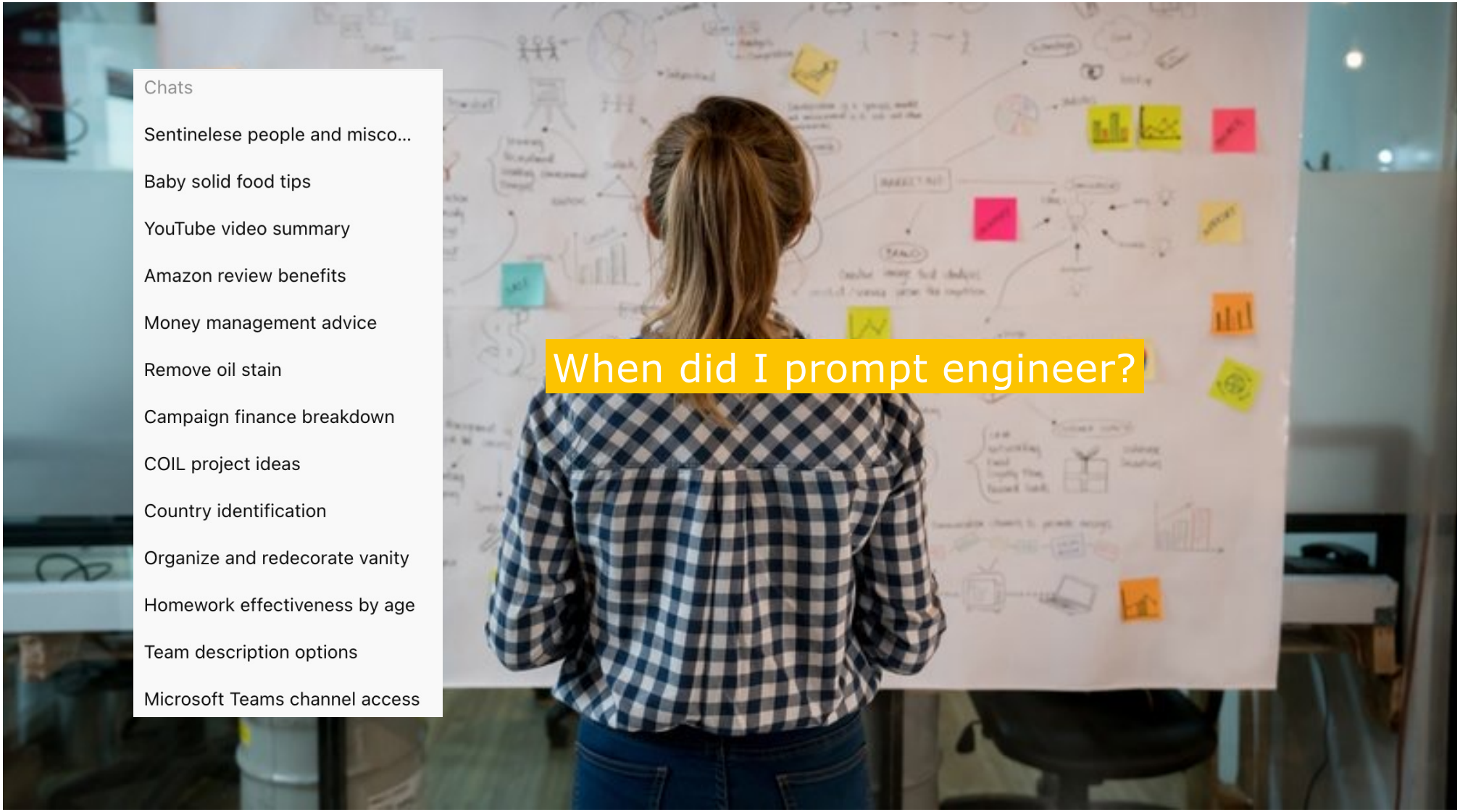
Why Prompt Engineer?

He goes to language school, even though no one on earth knows what language the Sentinelese speak,... And there was a kind of magical thinking that, because he has a divine blessing, somehow he will overcome their weariness and scepticism

— Jesse Moss, documentary-maker

PROMPT = Conducting School


Chats
Sentinelese people and misco...
Baby solid food tips
YouTube video summary
Amazon review benefits
Money management advice
Remove oil stain
Campaign finance breakdown
COIL project ideas
Country identification
Organize and redecorate vanity
Homework effectiveness by age
Team description options
Microsoft Teams channel access
When did I prompt engineer?

Prompt Engineering H25 (PROMPT)

Module Overview & Details

Prompt Engineering (PROMPT) will equip students with practical prompt engineering skills for text, image, music, and video generation, with a primary focus on text-based prompts. It will also cover ethical considerations, data privacy, and best practices for using AI responsibly in professional and academic settings. Each week students will practice and refine their prompt engineering skills through mini projects/tasks that mirror real-world applications.

Competencies to be attained

- Professional Competencies
  - Students can design effective prompts for various media, tailored to specific tools and contexts.
  - Students can adapt prompts to suit different models and use cases.
  - Students can understand limitations of generative models and their appropriate usage.
  - Students can identify and mitigate risks related to privacy, security, and intellectual property when working with AI tools.

- Methodological Competencies
  - Students can test and refine prompts systematically for different tasks
  - Students can compare prompting techniques to determine which is most effective for a given task.
  - Students can analyze and refine prompt structure to improve outputs.

- Personal Competencies
  - Students can engage critically and creatively with AI tools rather than passively accepting results.
  - Students can communicate ethically and transparently when disclosing AI use.
  - Students can reflect on the social and ethical implications of generative AI in everyday life and future work.

Goal of this module = hone creativity in how you ask and what you add in value.

"I know I want to be an entrepreneur so I'm looking at this module from that lense."

"I'm passionate about government/civics and would love to integrate this somehow."

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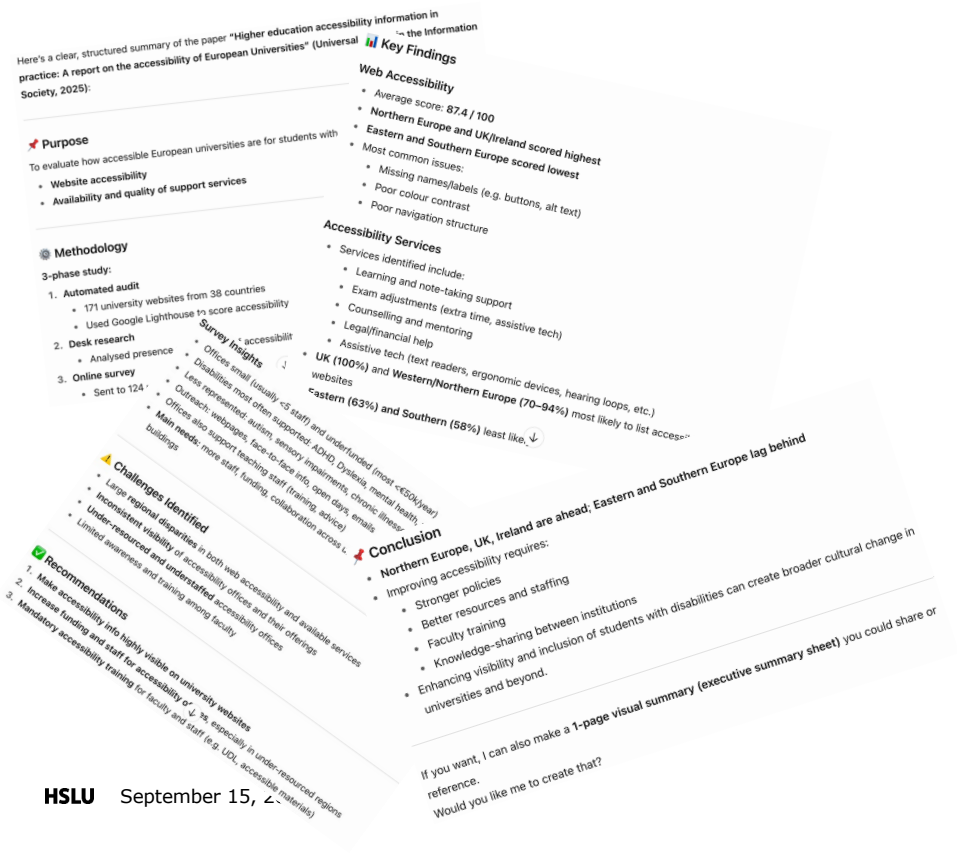
Vague vs. Specific Prompts

"Summarize this paper."



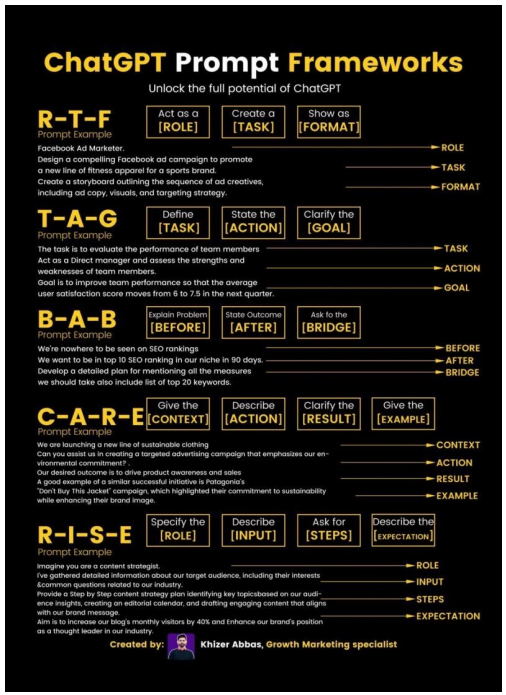
"Summarize this paper in 5 bullet points for university leaders. Start with a one-line takeaway. Include 1 key statistic, 1 main accessibility barrier, and 1 recommendation."

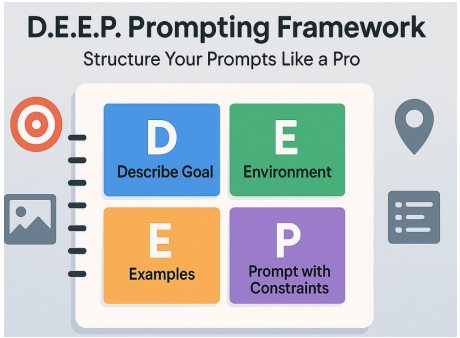
One-line takeaway:
European universities show large regional gaps in accessibility for students with disabilities—especially in online information and support services—requiring coordinated investment and policy action.

Key points for university leaders:

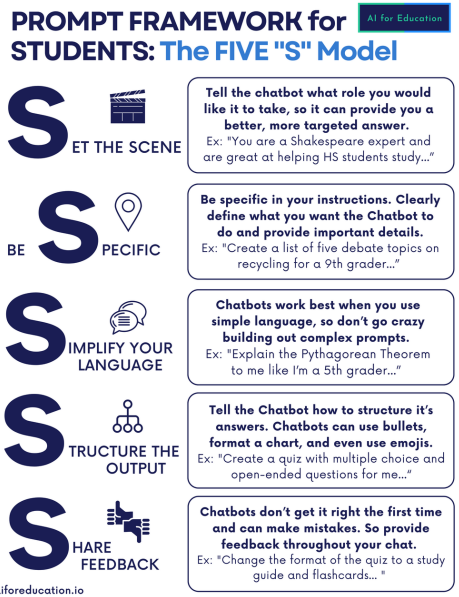
- **Accessibility gap across regions:** Northern Europe, the UK, and Ireland score much higher on website accessibility (avg. 95.9) than Eastern (83.1) and Southern (84.1) Europe, showing significant disparities in compliance and support Accessibility Paper.
- **Key statistic:** Only **29% of people with disabilities complete tertiary education**, compared to 44% of their non-disabled peers, highlighting the consequences of accessibility barriers Accessibility Paper.
- **Main barrier:** The most frequent website accessibility problem is **missing or ambiguous labels** (e.g., buttons without names, no alternative text), which block access for students using assistive technologies Accessibility Paper.
- **Support gaps:** Many accessibility offices are **understaffed (typically <5 people)** and operate on **budgets under €50 000**, limiting available assistive tech, mentoring, and exam accommodations Accessibility Paper.
- **Recommendation: Invest in more staff and resources for accessibility offices**, especially in under-resourced regions, to expand services (assistive tech, mentoring, counselling) and reduce the disparity in student support Accessibility Paper.

Various Prompting Frameworks

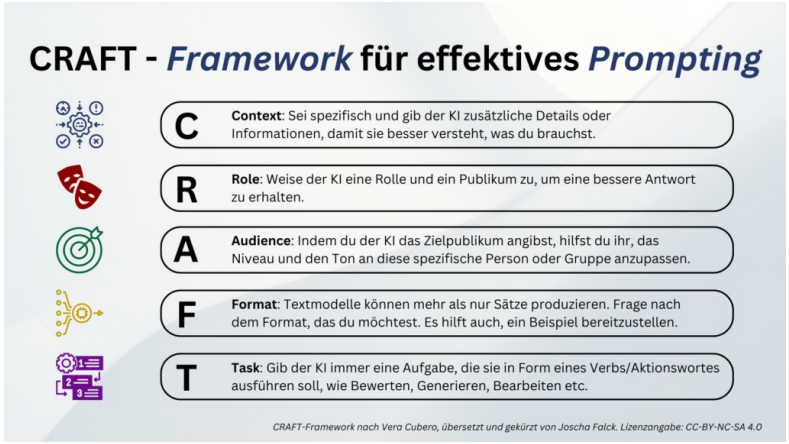




Medium.com



Ranjit Nambisan/AI



Google's "Strategies for writing better prompts"

1. Set Clear Goals and Objectives
2. Provide Context and Background Information
3. Use Few-Shot Prompting
4. Be Specific
5. Iterate and Experiment
6. Leverage Chain of Thought Prompting

Act like an Editor: R-T-C-F-Q Framework

Role/Audience

- **Who the model should "be"** (e.g. "career coach")
- **Who the work is for** (e.g. "first-semester AI/ML students")

Task

- **The action you want** (e.g. summarize, compare, extract, rewrite, plan, evaluate)

Context/Content

- **The material to work with** (e.g. your notes, a paragraph, a dataset, a link)
- **Examples** (e.g. second client with this issue)

Format

- The output shape (e.g. bullets, headings, table, 120 words, etc.).

Quality bar

- **What "good" looks like** (e.g. clear, specific, accurate, includes examples, cites sources)

Example: Importance of Role/Audience

Role/Audience

- Who the model should "be" (e.g. "career coach")
- Who the work is for (e.g. "first-semester AI/ML students")

Task

- The action you want (e.g. summarize, compare, extract, rewrite, plan, evaluate)

Context/Content

- The material to work with (e.g. your notes, a paragraph, a dataset, a link)

Format

- The output shape (e.g. bullets, headings, table, 120 words, etc.).

Quality bar

- What "good" looks like (e.g. clear, specific, accurate, includes examples, cites sources)

*"**Act as a career advisor for first-year AI/ML students. Rewrite my messy notes into a 5-bullet email** with a **friendly tone**, **each bullet begins with a verb, ends with one emoji, ≤120 words total**."*

Example: Structured output

Role/Audience

- Who the model should "be" (e.g. "career coach")
- Who the work is for (e.g. "first-semester AI/ML students")

Task

- The action you want (e.g. summarize, compare, extract, rewrite, plan, evaluate)

Context/Content

- The material to work with (e.g. your notes, a paragraph, a dataset, a link)

Format

- The output shape (e.g. bullets, headings, table, 120 words, etc.).

Quality bar

- What "good" looks like (e.g. clear, specific, accurate, includes examples, cites sources)

*"**As the hiring manager of Company Z**, **extract name, top 3 skills, and 1 sentence fit-reason** into **a 3-column table** from **this CV text**. **If missing, write 'x'.**"*

Example: Data Analysis

Role/Audience

- Who the model should "be" (e.g. "career coach")
- Who the work is for (e.g. "first-semester AI/ML students")

Task

- The action you want (e.g. summarize, compare, extract, rewrite, plan, evaluate)

Context/Content

- The material to work with (e.g. your notes, a paragraph, a dataset, a link)

Format

- The output shape (e.g. bullets, headings, table, 120 words, etc.).

Quality bar

- What "good" looks like (e.g. clear, specific, accurate, includes examples, cites sources)

"Analyze these survey results. Create a 4-row table: trend, supporting data, risk, recommendation. Highlight the most urgent row in bold."

Use-Case Framework Table

Use-Case	Who's it for?	Job to be done (task)	Input	Output format	Quality bar (what "good" must include)	Risks/ethics
writing cover letters	hiring manager at a company	create a short, tailored cover letter that connects my skills with the job posting	job ad text + CV bullet points	1 page cover letter (3-4 paragraphs) in professional tone	- personalized to job and company - highlights 2-3 skills from CV - natural human tone - no factual errors - concise and readable	- Don't paste personal info - check that AI doesn't invent jobs/skills - disclose AI use

Why Risks & Ethics Matter

AI ≠ Neutral Tool!

Samsung (2023) – Engineers pasted confidential code in ChatGPT that led to leaked company secrets

Mata v. Avianca (2023) – Lawyers submitted AI-generated legal filings citing fake cases

Medical AI (2025) – Researchers had to build special frameworks (CHECK, HALO) because clinical AI systems hallucinated diagnoses and medical terms

OpenAI (2024) – Italy's data protection authority fined OpenAI €15 million for violating EU privacy laws

Ageism in AI (2024) – Image & voice AI systems misrepresent or fail with older adults, favoring youthful faces and struggling with older voices

Always consider…

1) Privacy
2) Accuracy
3) Bias & Fairness
4) Disclosure

PROMPT’s Safe Prompting Habits

1. Redact confidential info before pasting/uploading
2. Verify before trusting output
3. Disclose when/where AI helped
4. Reflect and ask “Who could be harmed by this output?”

Task: A/B Test in Pairs

Instructions:

1) Choose one everyday task relevant to your life.
2) Write: **A**: 1-sentence simple prompt. **B**: specific R-T-C-F-Q prompt.
3) Choose a model to run both in, screenshot outputs, and fill a 1-row "mini logbook":

Goal	Prompt A→Output	Prompt B→Output	Which won?	Why?	Next tweak

4) Variations:
   1) Start with the same 1-sentence prompt and job to be done, and each person improves it with framework. Compare results.
   2) Compare different LLMs for different kinds of tasks

Exit ticket (graded for completion)

Upload in Week 1 Folder on ILIAS as a pdf:

1. screenshot of your fav./best AI input and output today
2. why is it your favorite/best?
3. one thing that could go wrong if someone trusted this output blindly (hallucination, bias, privacy breach, lack of disclosure)
4. suggest one improvement to your prompt
5. A/B Test Logbook

Due: Monday, 22.09.2025 noon

References

- Google Cloud. (n.d.). *Strategies for writing better prompts*. Retrieved September 8, 2025, from https://cloud.google.com/discover/what-is-prompt-engineering?hl=en#strategies-for-writing-better-prompts
- Krejtz, K., Marcus-Quinn, A., Duarte, C., Stasiak, I., Seixas Pereira, L., & Krejtz, I. (2025). Higher education accessibility information in practice: A report on the accessibility of European universities. *Universal Access in the Information Society, 24*, 2673–2685. https://doi.org/10.1007/s10209-025-01224-4
- MIT Sloan. (2023). *Addressing AI hallucinations and bias*. MIT Sloan School of Management. https://mitsloanedtech.mit.edu/ai/basics/addressing-ai-hallucinations-and-bias
- Reuters. (2024, December 20). *Italy fines OpenAI €15 million for violating EU privacy rules*. Reuters. https://www.reuters.com/technology/italy-fines-openai-15-million-euros-over-privacy-rules-breach-2024-12-20
- Research AI Multiple. (2024). *AI bias: A comprehensive overview*. https://research.aimultiple.com/ai-bias/
- Zhan, J., Carrillo, C., & Luo, Y. (2025). *Trustworthy AI for medicine: Continuous hallucination detection and elimination (CHECK)*. *arXiv*. https://arxiv.org/abs/2506.11129

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Thank you!

AI Disclosure

Portions of these slides were developed with the assistance of AI tools (ChatGPT, DALL-E, Gemini, QR Code Generator, and others).

I reviewed and edited all content to ensure accuracy, relevance, and alignment with the learning objectives.

Any errors remain my responsibility.

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