

Advanced prompt design

Advanced prompt generation techniques are what differentiate 'partially understand AI' from 'always understand AI perfectly'. These are the techniques that ensure reliable, reproducible, and production-grade output.

You can write prompts that deliver pretty good results. But 'pretty good' isn't all you need when AI is drafting legal briefs, analyzing financial data, or building customer-centric products.

Advanced prompt generation techniques are what differentiate 'partially understand AI' from 'always understand AI perfectly'. These are the techniques that ensure reliable, reproducible, and production-grade output.

This course will teach you the methods used by prompt creation experts at AI-based product development companies: structured prompt creation, inference sequences, learning with patterns, system prompt design, output control, and security patterns. These aren't tricks – they are technical methods for producing consistent results.

Things you will learn

1. Apply structured prompt generation techniques (XML tags, JSON schema, COSTAR framework) to consistently produce high-quality AI output.
2. Use inference chains, inference trees, and consistent prompt generation to solve complex reasoning problems.
3. Design prompts using strategically chosen few-shot techniques to teach the AI your desired output pattern.
4. Develop reusable system prompts to define AI behavior, constraints, and output formats for repetitive tasks.
5. Assess the security risks of the prompt, including prompt injection attacks, and deploy defensive prompt patterns.
6. Create a personalized prompt library with tested prompts, with versions for your most common AI workflows.

After this course, you will be able to

1. Generate reliable, production-quality AI output using a structured prompt with XML tags, JSON schema, and the COSTAR framework.
2. Solve complex reasoning problems by applying techniques such as chain reasoning, inference trees, and self-consistency.

3. Design prompts using a few-shot technique to teach AI your precise output patterns – eliminating the trial-and-error loop.
4. Inspect the prompts to detect attack vulnerabilities and deploy defensive models to protect your workflow.
5. Maintaining a prompt library with reusable versions for your team reduces iterative prompt design time from hours to minutes.

What you will build

The prompt system has a structure.

A collection of structured XML/JSON prompts across multiple domains – each prompt producing consistent, high-quality output that you can demonstrate to employers or clients.

Inference chain toolkit

A set of prompt patterns for reasoning sequences and mind trees that solve complex multi-step problems—with documented before/after quality comparisons.

Advanced prompt generation techniques

Demonstrate that you can apply structured prompts, inference chains, few-shot learning techniques, system prompt design, and prompt security patterns.

Prerequisites

1. Basic experience with AI assistants (ChatGPT , Claude, Gemini , or similar)
2. Familiar with writing simple commands (you've used AI to generate text, answer questions, or complete tasks)
3. No programming experience is required (for example, programming is an optional extra).

Who is the right person for this role?

1. Advanced AI users – you use AI daily and want more consistent, higher-quality results.
2. Developers are building AI-powered features or products and need reliable commands.
3. Content professionals—writers, marketers, analysts—need AI output they can trust.
4. Prompt creation expert - formalize your skills with proven frameworks and templates.
5. Anyone experiencing this kind of inertia – your basic commands work, but complex tasks produce inconsistent results.

Going beyond basic prompts

Understand why basic prompts have limitations and how advanced techniques address consistency, reliability, and complexity issues that simple prompts cannot solve.

You've been using AI for months. You might be able to write prompts that produce pretty good results. But you'll notice one thing: Sometimes the AI gets it right, sometimes it gets it wrong. The same prompt, but on different days, the quality varies. And when the task gets more complex—analyzing data, following multi-step instructions, maintaining consistency across outputs—the basic prompt starts to fail.

This isn't an AI error. It's a prompt issue.

By the end of this lesson, you will understand why basic prompts have limitations, what advanced techniques exist to overcome those limitations, and how this course is structured to systematically build your skills.

The issue of consistency

Prompt basically works like a conversation. You ask, the AI answers. Sometimes it's excellent. Sometimes... not so good.

Here's why:

Basic prompt : "Summarize this article."

Run it five times and you'll get five different summaries: different lengths, different focuses, different structures. Each one is reasonable – but none of them match what you actually need.

Advanced Prompt :

Tóm tắt bài báo sau. - Chính xác 3 gạch đầu dòng - Mỗi gạch đầu dòng là một phát hiện chính với dữ liệu hỗ trợ - Chỉ đề cập: Chỉ nêu ý kiến hành (không dùng thuật ngữ chuyên ngành) - Bao gồm kết luận chính của bài báo 3 gạch đầu dòng cuối cùng [nội dung bài báo]

Run it five times and you'll get five identical summaries—same structure, same focus, same subject. The results are consistent because the prompt doesn't leave any room for interpretation.

Quick Test : A marketing team uses the prompt "Write social media content for our product." They get very different results each time—sometimes a tweet, sometimes a blog post, sometimes a sales pitch. Why is this happening, and how would you fix it?

Answer : The prompt doesn't specify: Which platform (Twitter, LinkedIn, Instagram?), what tone (informal, professional, playful?), how long it should be (280 characters, or carousel?), what the product is, or what action the reader should take. An advanced prompt would specify all of these things:

Viết một bài đăng trên LinkedIn (150 - 200 từ) quảng bá công cụ quản lý dự án mới của chúng tôi. Giọng văn: Chuyên nghiệp nhưng thân mật. Bao gồm một lợi ích cụ thể và lợi ích kêu gọi hành động ngắn gọn cuối cùng.

5 key elements for creating advanced prompts

This course teaches you 5 types of techniques:

1. Structure (Lesson 2)

How you organize a prompt is just as important as the content you write. Tag XML, JSON schema, and frameworks like COSTAR provide AI with a clear map of your instructions.

2. Reasoning (Lesson 3)

For complex problems, requiring AI to "think step-by-step" (inference sequence) will significantly improve accuracy. Thought trees and internal consistency will take this even further.

3. Example (Lesson 4)

Providing guidance through a few examples – showing the AI ??examples of correct output – is the most reliable way to teach a particular pattern, format, or classification system.

4. Control (Lessons 5-6)

System prompts define the AI's identity, constraints, and behavior. Output controls specify the format, length, tone, and structure.

5. Safety (Lesson 7)

Prompt injection is the number one AI security vulnerability. Understanding attack patterns and prompt defenses is essential for any production application.

Advanced-level changes

Basic Prompt	Advanced Prompt
Write and hope for the best possible outcome.	Techniques aimed at achieving consistent results.
These efforts are one-time occurrences.	Iterative improvement accompanied by evaluation
Natural language only	Structured formats (XML, JSON)
Implicit inference	Clear-cut chain of reasoning (CoT)
General guidelines	Prompt system with roles, constraints, and output specifications.
No security considerations were given.	Defense prompt patterns
Random prompts	The library with the prompts has been tested and is available in version.

By the end of the course, you'll be able to build a personal prompt library—a collection of tested, reusable prompts for your specific workflow. You'll be using this library long after the course is finished.

? **Quick check** : You have a prompt that works perfectly 80% of the time but fails miserably 20% of the time. Is this a good prompt?

Answer : For general use, yes. For any professional work—customer communication, critical data, or tasks requiring repetition—no. An 80% success rate means that 1 in 5 results need manual correction or contain errors. Advanced system prompts aim for consistency above 95%, achieved through structure, examples, constraints,

and testing. The remaining 5% is discovered by humans.

Key points to remember

1. Basic prompt systems work well for simple tasks but struggle with complex, multi-step jobs or those requiring high consistency.
2. The core problem is the lack of clarity – any ambiguity in your prompt is randomly resolved by the AI.
3. Advanced prompt systems eliminate ambiguity through structure, reasoning, examples, and constraints.
4. The five core elements are: Structure, Reasoning, Examples, Control, and Safety.
5. The goal is shifting from "receiving positive feedback" to "receiving positive feedback consistently every time."
6. This course helps you build a personal prompt library that you will use every day.

1. Question 1:

A company uses AI to classify customer support requests. The basic prompt, 'Classify this request,' works 70% of the time. What advanced techniques would improve accuracy?

1. A. Adding the word "please" to the prompt—confusing correlation and cause here leads to ineffective strategies.
2. B. Using a different AI model
3. C. Provide 5-10 labeled examples of accurately categorized requirements (few-shot technique) and precisely identify those categories with descriptions.

EXPLAIN:

The prompt-selection technique provides AI with concrete examples of what accurate categorization looks like. Instead of guessing the meaning of the word "categorization," the AI will see: "Password reset request ? Account issue, Application failed to log in ? Bug report, Can you add Dark Mode? ? Feature request." With examples plus category definitions, accuracy often increases from 70% to over 90% because the AI understands your specific categorization system.

2. Question 2:

What distinguishes advanced prompt writing techniques from basic prompts?

1. A. Use longer prompts
2. B. Design prompts to ensure consistency and reliability: Structured format, clear reasoning steps, strategic examples, defined constraints, and testable output specifications.
3. C. Use more polite language - this is a common belief but not sound when considered more closely.

EXPLAIN:

Advanced prompt design involves reliability engineering techniques, not clever wording. The goal shifts from 'getting good feedback' to 'getting consistently good feedback that meets specific quality criteria'. This requires structure (XML/JSON), clear reasoning (inference chain), examples (few-shots), constraints (output format), and testing (evaluation)—these are the topics of this course.

3. Question 3:

You write a prompt telling the AI to 'analyze this data and make recommendations'. The results are always different each time you run it. What is the core problem?

1. A. Prompt is not clearly defined
2. B. You need a faster computer - confusing correlation and causality here leads to ineffective strategies.
3. C. AI is faulty.

EXPLAIN:

Inconsistent results indicate that the request was not clearly defined. 'Analysis' could mean statistical analysis, trend identification, or anomaly detection. 'Recommendation' could be three bullet points or a five-page report. Every ambiguity is like flipping a coin—AI solves it differently each time. Advanced prompt writing techniques eliminate these randomness by defining the structure, methodology, formatting, and constraints. It doesn't define what 'analysis' means, which data points to focus on, what the recommendation format should be, or what criteria to use for prioritization.

Submit your work

Training results

You have completed **0** questions.

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