

TIPS-G

TRAINING THE INNOVATORS OF TOMORROW

Certified Prompt Engineer

Professional Certification Program

Move beyond basic "Ask and Receive". Learn the psychology, reasoning frameworks, and advanced architectures of Large Language Models to build production-grade AI applications.

The "Golden Rule" of Prompting

"The model cannot read your mind, only your syntax. If the output is poor, the instruction was likely underspecified."

Phase 1: The Foundations (Beginner)

Goal: *Understand the "Psychology" of LLMs and basic structure.*

Module 1: The Anatomy of a Prompt

- **Lesson 1.1: Role Prompting** – Why telling the AI "Act as a Senior Python Developer" changes the latent space it accesses.
- **Lesson 1.2: The Core Components** – Instruction, Context, Input Data, and Output Indicators.
- **Lesson 1.3: Precision vs. Vagueness** – Learning to eliminate "dead words" and ambiguous adjectives.

Module 2: Controlling Output

- **Lesson 2.1: Formatting** – Forcing outputs into JSON, Markdown tables, or CSV.
- **Lesson 2.2: Tone & Persona** – Adjusting the "temperature" of the response through text (e.g., "Professional yet witty").
- **Lesson 2.3: Constraints** – Using negative prompting (e.g., "Do not mention [Topic]").

Phase 2: Intermediate Strategies

Goal: *Moving beyond "Ask and Receive" to structured reasoning.*

Module 3: Reasoning Frameworks

- **Lesson 3.1: Few-Shot Prompting** – Providing examples to the model to establish a pattern.
- **Lesson 3.2: Chain of Thought (CoT)** – Using "Let's think step-by-step" to improve logic in math and symbolic reasoning.
- **Lesson 3.3: Self-Consistency** – Generating multiple paths of reasoning to find the most common (and likely correct) answer.

Module 4: Context Management

- **Lesson 4.1: The Context Window** – Understanding token limits and how to prioritize information.
- **Lesson 4.2: Delimiters** – Using ###, "", or XML tags to separate instructions from data.

Phase 3: Advanced Architectures

Goal: *Systemic prompting for production-grade AI applications.*

Module 5: Advanced Heuristics

- **Lesson 5.1: Tree of Thoughts (ToT)** – Solving complex problems by exploring multiple branches of reasoning simultaneously.
- **Lesson 5.2: Chain of Verification (CoVe)** – Prompting the model to fact-check its own previous claims.
- **Lesson 5.3: Iterative Refinement** – Building “meta-prompts” that help the AI improve its own initial drafts.

Module 6: Automation & Integration

- **Lesson 6.1: Prompt Chaining** – Breaking a massive task into 5 small prompts where the output of Prompt A is the input for Prompt B.
- **Lesson 6.2: RAG (Retrieval-Augmented Generation)** – How to prompt a model when it has access to external documents (PDFs, Web search).
- **Lesson 6.3: Avoiding Injection & Jailbreaks** – Protecting prompts from being bypassed by malicious users.

Practical Exercise 1: Role + Task + Constraint

Task: *Write a prompt to explain “Quantum Computing” to a 10-year-old.*

Parameters:

- **Role:** Expert Physics Teacher.
- **Constraint:** Do not use the word “Subatomic.”
- **Format:** Use a “Sports” analogy.

This exercise sets the foundation for controlling exactly how the LLM generates its response by layering specific boundaries and creative rules.