

# PRACTICAL PROMPT ENGINEERING WITH GENERATIVE AI (2 MONTHS)

Duration: 8 Weeks (2 Months)

Sessions: 2–3 sessions per week, 1.5–2 hours each

Tools: Any LLM (ChatGPT / Gemini / Claude / etc.)

# Course Overview

**By the end of the course, learners will be able to:**

- Understand how large language models (LLMs) work at a high level
- Design effective prompts for text, code, images, data analysis and chatbots
- Use advanced prompt patterns (Chain-of-Thought, ReAct, role prompting, etc.)
- Systematically debug, refine and evaluate prompts
- Build small prompt-based projects (chatbots, content workflows, assistants)

## Week 1 – Fundamentals of LLMs & Prompting Basics

### Topics

- What is Generative AI & LLMs (high-level idea, not maths)
- Types of models: text, code, image, multimodal
- What is a “prompt”? – Input, output, context
- Basic prompt patterns:
- Direct instruction prompts
- Q&A prompts
- Completion vs Chat
- Temperature, max tokens, system vs user messages (conceptually)

### Hands-On / Lab

- Simple prompts: question answering, rewriting, summarizing
  - Converting informal request → clear prompt
  - First mini-task: “Make the AI my personal assistant for 1 task”
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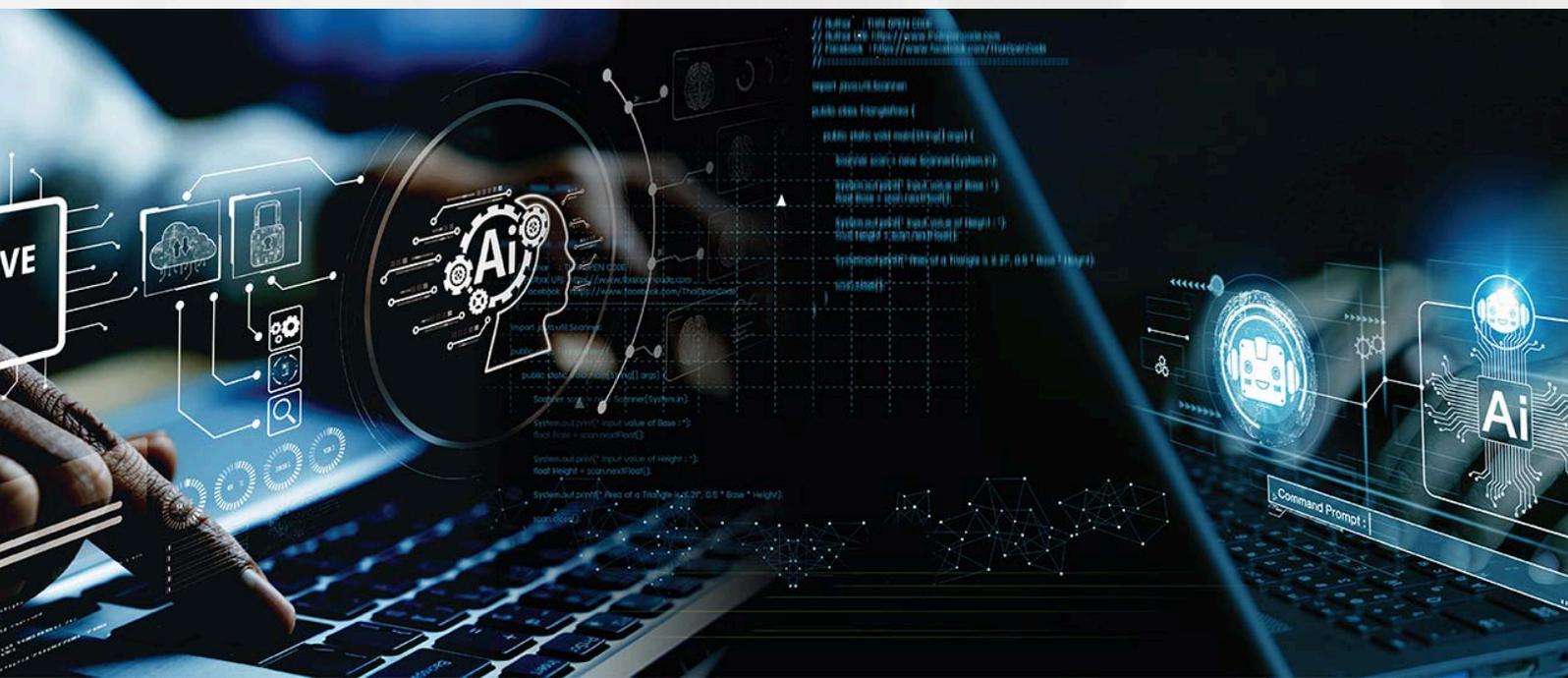
# Week 2 – Structuring Prompts Like a Pro

## Topics

- Anatomy of a good prompt:
- Role
- Task
- Context / Constraints
- Format / Output style
- Role prompting (e.g., “act as a doctor / teacher / interviewer”)
- Few-shot prompting: giving examples
- Controlling tone, length, language, style
- Prompt templates and reusable structures

## Hands-On

- Create reusable templates for:
- Email drafting
- LinkedIn post / Instagram caption
- Explanation for a school student vs professional
- Small assignment: build a prompt library (5–8 prompts)



# Week 3 – Advanced Prompt Patterns & Reasoning

## Topics

- Chain-of-Thought (CoT) prompting – making the model “show its steps”
- Step-by-step reasoning prompts
- Decomposition: breaking big problems into sub-tasks using prompts
- ReAct-style prompting (Reason + Act) – high-level concept
- Multi-turn prompting: keeping context across a conversation
- Self-critique and self-reflection prompts (“check your work”, “find mistakes”)

## Hands-on

- Design prompts for:
- Solving logical puzzles
- Drafting + reviewing + improving an answer
- Mini-project: create a multi-step reasoning flow (e.g., idea → outline → draft → refine)



# Week 4 – Prompting for Different Use Cases

## Topics

### Prompting for content creation

- Blogs, social media, ads, scripts
- Storytelling and creativity prompts

### Prompting for coding

- Writing small functions
- Explaining code
- Debugging / refactoring

### Prompting for data & analysis

- Table understanding
- Creating summaries & insights from data descriptions

### Prompting for education

- AI as tutor
- Quiz generation
- Lesson plans



## Hands-On

### Build:

- A mini content pipeline prompt (idea → outline → script → captions)
- A “coding helper” prompt
- An “AI teacher” prompt for one subject

## Week 5 – Prompt Evaluation, Debugging & Safety Topics

- Why prompts fail: ambiguity, missing context, unrealistic expectations
- Debugging prompts:
- From vague → specific
- From long → structured
- Evaluating outputs: accuracy, relevance, tone, bias
- Red teaming: testing edge cases and limitations
- Safety, ethics, and responsible use of AI
- Hallucinations
- Sensitive topics
- User data & privacy (high level)



## Hands-On

- Take a bad prompt and iteratively improve it in 3–4 versions
- Create a checklist for “good response vs bad response”
- Small exercise: add safety instructions into prompts

## Week 6 – Workflows, Tools & Basic Automation

### Topics

- Designing prompt workflows (multi-step pipelines)
- System prompts vs user prompts vs tool usage (conceptual)
- Introduction to APIs & playgrounds (no deep coding required):
- How to send a prompt from UI / low-code tools
- Intro to Retrieval-Augmented Generation (RAG) at a high level
- “Chat with your PDF / data” idea
- Using prompts with:
  - Notion / Google Docs / Sheets
  - No-code tools (Make/Zapier examples conceptually)



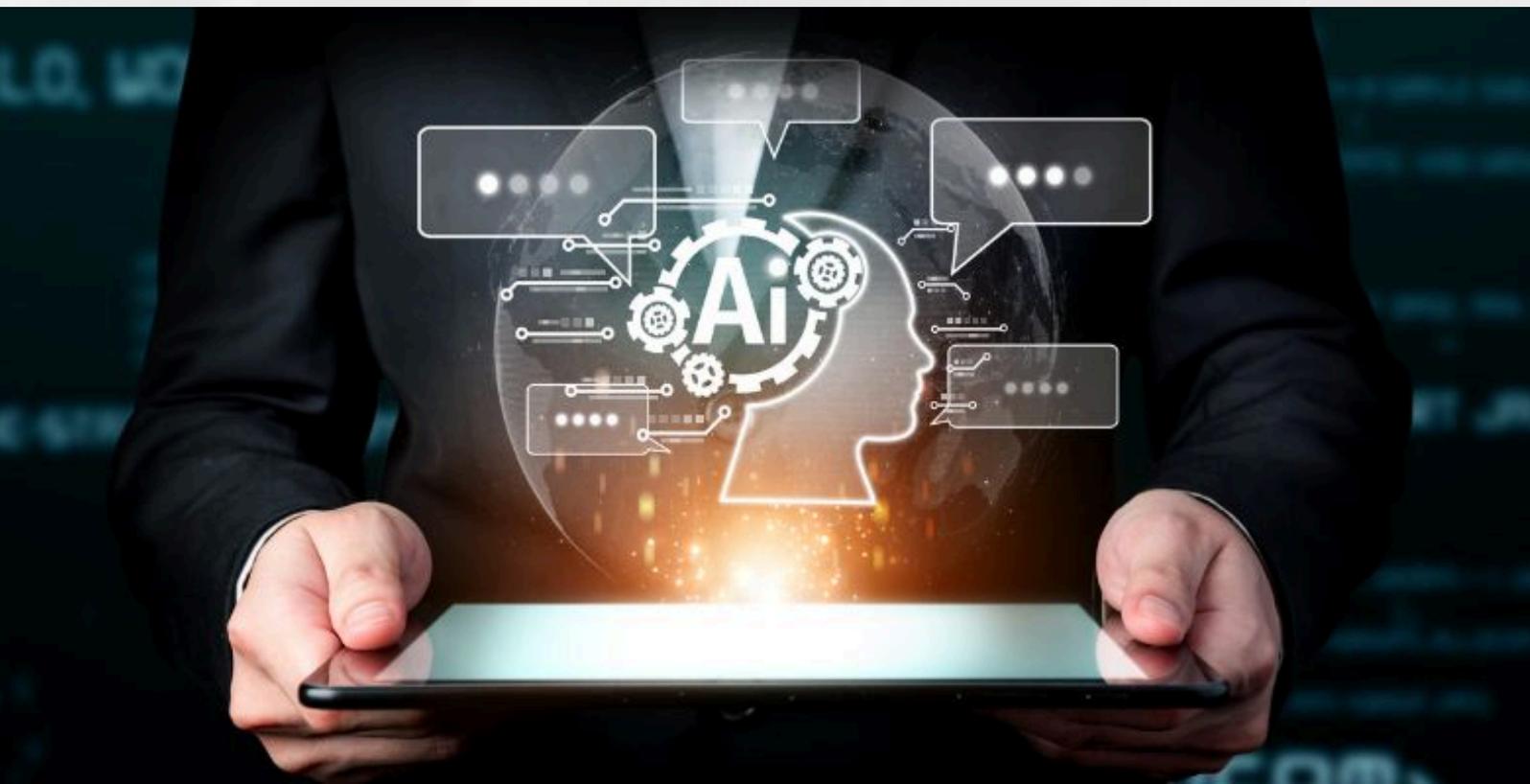
## Hands-On

- Design a workflow like:
- Raw client request → AI summarizer → AI reply generator
- Build a simple document Q&A prompt using copy-paste context
- Optional: intro demo using an API playground

## Week 7 – Domain-Specific Prompting & Mini Projects

### Topics

- Domain-specific patterns:
- Business & startups: market research, pitch, customer emails
- HR & placements: resume tailoring, JD analysis, mock interviews
- Education: assignments, quiz generator, explanations
- Research: literature search assistance, outline generation
- Creating your own prompt packs for a domain
- How to document prompts and share them with teams



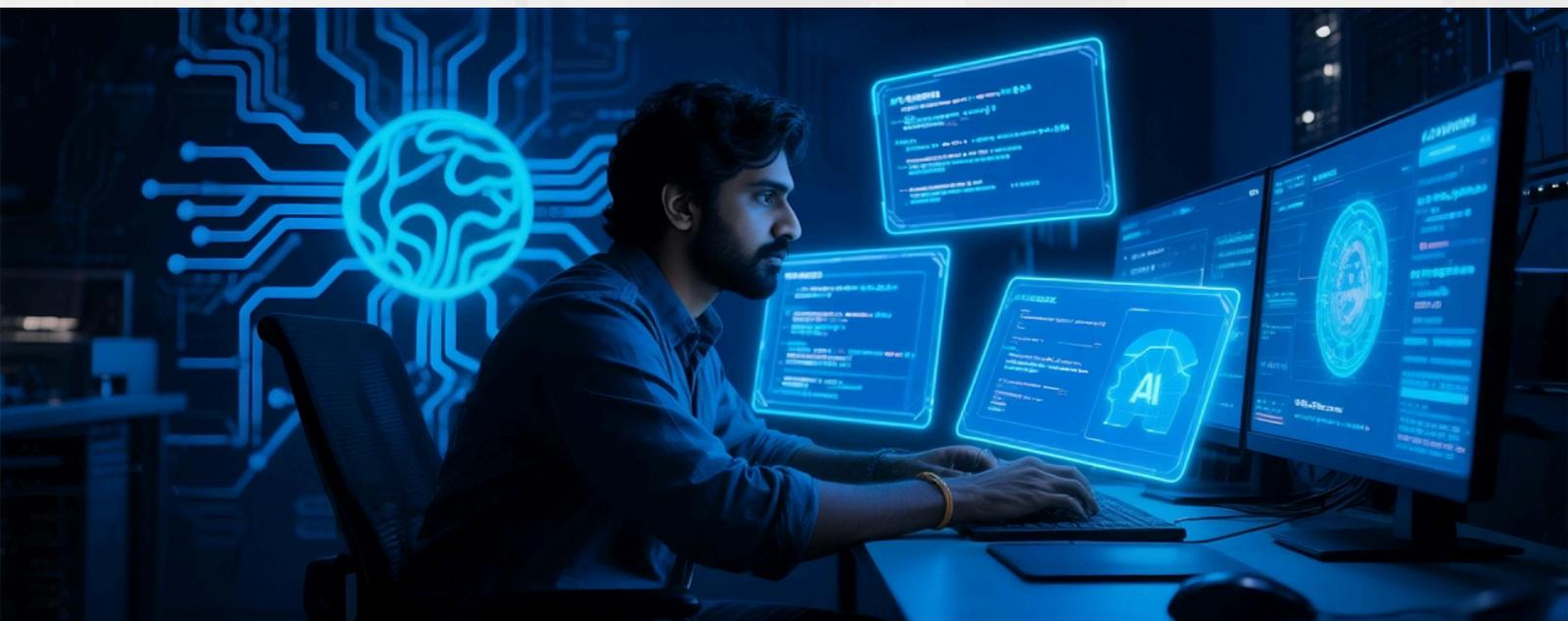
## Hands-On

- Students pick one domain (e.g., HR, marketing, education, tech)
- Create a prompt pack of 10–15 prompts for that domain
- Start Capstone Project planning:
- What real-world problem will they solve with prompts?

## Week 8 – Capstone Project & Future of Prompt Engineering

### Topics

- Capstone project execution & presentation
- Examples of:
  - AI assistants
  - Chatbots
  - Prompt-based content engine
  - Personal productivity co-pilot
- Best practices & career angle:
  - How to show prompt engineering skills on resume
  - Real job roles where this helps (PM, marketer, HR, dev, support)
  - Future trends: agents, multimodal, voice, workflows



## Capstone Ideas (students choose one)

- “AI Project Guider” – prompts to guide a student from topic selection → report → PPT → viva questions
- “Content Studio” – prompts to generate and manage social media content for one brand for 1 month
- “Placement Assistant” – prompts to generate resume bullet points, cover letters, and mock interview Q&A
- “Business AI Assistant” – prompts for email replies, meeting summaries, and proposal drafts

## Deliverables

- Capstone: prompt design document + demo
- Final Prompt Portfolio with 20–30 well-designed prompts



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