SYLLABUS

ARTIFICIAL INTELLIGENCE & DATA SCIENCE · COURSE HANDOUT 2026

PROMPT ENGINEERING

RO-SHOT . FEW-SHOT . CHAIN
SYSTEM PROMPTS . PROMP
LUATION . GUARDRAILS . CO

DURATION	LEVEL	MODULES	MODE
30 Hours	**Beginner to Advanced**	**8**	**Classroom · Online · Hybrid**

01 COURSE OVERVIEW

A focused course on writing, testing and maintaining prompts for production use. The course treats prompting as engineering work: version-controlled instructions, structured output, measurable quality and controlled cost. Techniques are practised across ChatGPT, Claude, Gemini and Perplexity so learners can see how the same prompt behaves on different models.

The final exercise is a documented prompt library for a chosen business function, with an evaluation sheet.

WHO IT IS FOR

- Anyone using AI tools daily at work
- Marketers, analysts and support teams
- Developers building AI features
- Trainers and content teams

PREREQUISITES

No programming required. Comfort with web tools is enough.

02 LEARNING OUTCOMES

01 Choose a prompting pattern that suits the task.

02 Write system prompts that hold behaviour over long chats.

03 Force structured, parseable output.

04 Chain prompts into multi-step workflows.

05 Test prompt quality with a repeatable evaluation set.

06 Reduce token cost without losing accuracy.

07 Defend prompts against injection and leakage.

03 MODULE STRUCTURE

8 MODULES

01 FOUNDATIONS

How models read prompts

Tokens and context

Determinism and temperature

Model differences

Common failure modes

LAB

SAME PROMPT ACROSS FOUR MODELS

02 CORE PATTERNS

Zero-shot

One-shot

Few-shot

Instruction framing

Delimiters and formatting

Negative instructions

LAB

PATTERN COMPARISON

03 REASONING PATTERNS

- Chain-of-thought
- Tree-of-thought
- Self-consistency
- Step-back prompting
- Task decomposition

LAB

MULTI-STEP REASONING TASKS

04 ROLE AND SYSTEM DESIGN

- Role prompting
- System prompt structure
- Tone and constraints
- Persona consistency
- Refusal handling

LAB

SUPPORT ASSISTANT SYSTEM PROMPT

05 STRUCTURED OUTPUT

- JSON output
- Schemas
- Tables and lists
- Validation
- Retry strategies

LAB

SCHEMA-VALIDATED EXTRACTION

06 CHAINING AND WORKFLOWS

- Prompt chaining
- Routing
- Summarise-then-act
- Tool use
- Human review points

TOOLS

CHATGPT **CLAUDE** **GEMINI** **PERPLEXITY**

07 EVALUATION AND OPTIMISATION

- Test sets
- Rubrics
- LLM-as-a-judge
- A/B testing prompts
- Token and latency budgets

LAB

EVALUATION SHEET

08 SAFETY AND MAINTENANCE

- Prompt injection
- Data leakage
- Sensitive data handling
- Versioning
- Documentation

PROJECT

PROMPT LIBRARY FOR ONE BUSINESS FUNCTION

04 ASSESSMENT & CERTIFICATION

Module assignments and labs	**25%**
Mini projects	**20%**
Internal assessments	**15%**
Final project and review	**40%**

CERTIFICATION

Learners who complete all modules, submit the final project and clear the review receive a course completion certificate from Kaizen Infinities Private Limited. Project work is documented for the learner's portfolio, and interview preparation is included in the closing sessions.

05 CAREER OUTCOMES

ROLES THIS PROGRAMME PREPARES FOR

PROMPT ENGINEER **AI CONTENT SPECIALIST** **AI SUPPORT DESIGNER** **AI WORKFLOW CONSULTANT** **CONVERSATION DESIGNER**

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