COURSE TITLE	**PROMPT ENGINEERING**
COURSE CODE	**01CE0106**
COURSE CREDITS	**1**

Objective:

1 The objective of this course is to provide students with hands-on experience in designing, refining, and analyzing prompts for generative AI systems. It aims to build practical skills in zero-shot, few-shot, and chain-of-thought prompting, develop creativity through role-play and guided writing, enhance reasoning and comparison skills, and apply prompt engineering for real-world tasks such as code debugging, summarization, and case-based problem solving.

Course Outcomes: After completion of this course, student will be able to:

1 Apply different prompting techniques such as zero-shot, few-shot, and step-by-step prompting to solve reasoning and computational problems.

2 Analyze and compare outputs generated through various prompts for programming, summarization, and translation tas

3 Evaluate the effectiveness of prompts in creative, role-play, and real-world scenarios to enhance clarity and context-awareness

4 Apply prompt engineering strategies to implement case-based problem-solving and mini chatbot development

Pre-requisite of course: Basic knowledge of computer programming, problem-solving, and communication skills in English

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	2	0	0	0	25	25

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Practical 1** Basic Prompting Practice	2
2	**Practical 2** Effect of Prompt Phrasing	2
3	**Practical 3** Role of Instructions in Prompts	2

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
4	**Practical 4** Zero-shot vs Few-shot Prompting	2
5	**Practical 5** Step-by-Step Reasoning	2
6	**Practical 6** Prompting for Comparison	2
7	**Practical 7** Building a Mini-Chatbot	2
8	**Practical 8** Multilingual Translation	2
9	**Practical 9** Summarization of Text/Email	2
10	**Practical 10** Role-play Conversation	2
11	**Practical 11** Guided Creative Writing	2
12	**Practical 12** Exploring Limitations of Prompts 2	2
13	**Practical 13** Code Generation & Debugging	2
14	**Practical 14** Data Visualization & Analysis with Prompts	2
Total Hours		**28**

Textbook :

1 Prompt Engineering for Generative AI: Future-Proof Inputs for Reliable AI Outputs, James Phoenix & Mike Taylor, O'Reilly Media, Inc., 2024

References:

1 AI Engineering in Practice: Prompt Design and Retrieval-Augmented Generation, AI Engineering in Practice: Prompt Design and Retrieval-Augmented Generation, Richard Davies & Rafael Fischer, -, 2024

2 Prompt Design and Engineering: Introduction and Advanced Methods, Prompt Design and Engineering: Introduction and Advanced Methods, Xavier Amatriain, ArXiv Preprint, -, 2024

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery

Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
0.00	0.00	0.00	0.00	0.00	0.00

Instructional Method:

1. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
2. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
3. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
4. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.

Supplementary Resources:

1. https://developers.google.com/machine-learning/resources/prompt-eng
2. https://cloud.google.com/discover/what-is-prompt-engineering?utm_source=chatgpt.com
3. https://docs.anthropic.com/en/docs/build-with-claude/prompt-engineering/overview

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