

	MAHATMA GANDHI UNIVERSITY Kottayam, Kerala Undergraduate Programmes (HONOURS) 2025 Admission Onwards
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SYLLABUS			
SIGNATURE COURSE			
Name of the College	NSS College, Rajakumari		
Faculty/ Discipline	Electronics with Computer Technology		
Programme	BSc (Hons) Electronics with Computer Technology		
Course Coordinator	Dr. Saritha M		
Contributors			
Course Name	Prompt Engineering for Technical Systems		
Type of Course	DSE		
Specialization title	This Signature Course does not have a specialization.		
Course Code	MG3DSEECTA00		
Course Level	200		
Course Summary	Introduces students to structured prompting techniques using modern LLM tools like ChatGPT. Emphasis is on generating technical outputs, including structured code and logic.		
Semester	3	Credits	4
Course Details	Learning Approach		Lecture
	Credits		Total Hours
	4		60
Pre-requisites, if any	Basic Computer Knowledge		

Course Outcomes (CO)

Number of COs		4	
CO No.	Expected Course Outcome	Learning Domains *	PO No
1	Explain the fundamental workings and limitations of Large Language Models.	U	PO1, PO2
2	Apply basic and advanced prompting techniques to guide LLM behavior.	A	PO1, PO2, PO3
3	Analyze a given task and design an optimal prompt structure to solve it. Evaluate the quality and bias of LLM-generated content.	An, E	PO3, PO4
4	Create a portfolio of effective prompts for diverse real-world applications.	C	PO9, PO10

*Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)

CO-PO Articulation Matrix

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	3	3	-	-	-	-	-	-	-	-

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 2	3	3	3	-	-	-	-	-	-	-
CO 3	-	-	3	3	-	-	-	-	-	-
CO 4	-	-	-	-	-	-	-	-	3	3

'0' is No Correlation, '1' is Slight Correlation (Low level), '2' is Moderate Correlation (Medium level) and '3' is Substantial Correlation (High level).

Course Content

Content for Classroom transaction (Units)

Module	Units	Course Description	Hrs	CO No.
1	Introduction to Large Language Models			
	1.1	History of Language Models: From Rule-based to Transformers (Conceptual).	3	["1"]
	1.2	The "GPT" Analogy: Understanding LLMs as "Advanced Auto-complete" without complex math.	4	["1"]
	1.3	Key Concepts: Tokens, Context Window, Parameters (Size vs. Capability).	4	["1"]
	1.4	Capabilities and Limitations: Hallucination, Recency Bias, Mathematical inability.	3	["1"]
2	Core Prompting Techniques			
	2.1	Anatomy of a Prompt: Instruction, Context, Input Data, Output Indicator	4	["2"]
	2.2	Zero-shot vs. Few-shot Prompting	4	["2"]
	2.3	Chain-of-Thought (CoT) and Zero-shot CoT	4	["2"]
	2.4	Persona Pattern and Audience Targeting	4	["2"]
3	Advanced Prompting & Structured Outputs			
	3.1	Iterative Refinement: The process of "prompt hacking" to improve results	4	["3"]
	3.2	Formatting Output: JSON, Markdown, XML	4	["3"]
	3.3	Introduction to Meta-prompting.	4	["3"]
	3.4	Ethical Prompting: Avoiding bias and toxic outputs.	4	["3"]
4	Practical Applications and Evaluation			
	4.1	Summarization, Q&A, and Text Transformation.	4	["3", "4"]
	4.2	Code Generation and Explanation.	4	["3", "4"]
	4.3	Evaluating Prompt Quality: Accuracy, Coherence, Relevance.	3	["3", "4"]
	4.4	Future of HCI: How Prompting changes how we interact with computers.	3	["3", "4"]

Teaching and Learning Approach	Classroom Procedure (Mode of transaction) Interactive Mini-Lectures (20-30 minutes per session) Introduce concepts with real-time demonstrations. Practical Workshops (Core Activity): Students create and test prompts during class. Compare outputs across platforms (ChatGPT, Gemini, Claude). Document iterations and improvements. 30-40 minutes per session is dedicated to hands-on work . Individual and Team Exercises. Discussion and Reflection. Analyze why certain prompts succeed or fail. Discuss ethical considerations and bias.
Assessment Types	MODE OF ASSESSMENT Mode of Assessment: Practical
	A. Continuous Comprehensive Assessment (CCA) • Practical - 30 Marks Weekly experiments 5, Lab Assignments 5, Mini Project 10, Viva Voce 10
	B. End Semester Evaluation (ESE) • Practical - 70 Marks Assessment Methods – Problem Definition 10, System Design 15, Implementation 15, Innovation 10, Documentation 10, Presentation and Viva 10 Duration of Examination – 2.00 Hrs

References

- 1. Nayar, A., Vairamani, A. D., & Kaswan, K. (2025). Mastering Prompt Engineering: Deep Insights for Optimising Large Language Models (LLMs). Elsevier Science & Technology. 2. Prompt Engineering for LLMs: John Berryman, Albert Ziegler, O'Reilly Publisher The Art of Prompt Engineering with ChatGPT: A Hands-on Guide (learn AI Tools the Fun Way!) by Nathan Hunter 3. Prompt Engineering for Beginners: Gaurav Arora, Geetu Garg, and Kapila Arora

Suggested Readings

- Research Papers: 1. Brown, T., et al. (2020). Language Models are Few-Shot Learners. NeurIPS. 2. Tamkin, A., et al. (2021). Understanding Prompt Engineering. Stanford University. 3. Wei, J., et al. (2022). Chain-of-Thought Prompting Elicits Reasoning in Large Language Models. NeurIPS. 4. Kojima, T., et al. (2022). Large Language Models are Zero-Shot Reasoners. NeurIPS.

Affidavit

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