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BRIDGING THE GENERATIVE AI LITERACY GAP: A GUIDE TO INTRODUCING PROMPT ENGINEERING IN UNIVERSITY COURSES

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ABSTRACT

Aim/Purpose	To address the gap in students' effective use of generative AI tools, this paper presents a framework to introduce university students to the principles and practices of prompt engineering – the art and science of crafting precise and purposeful inputs to guide LLMs in generating accurate and useful outputs. This paper aims to equip students with strategies to interact meaningfully with AI chatbots for academic success.
Background	Generative AI tools, like ChatGPT, are widely adopted in educational settings, yet many students lack the skills to harness their full potential. This paper introduces prompt engineering as a critical competency for students to develop both technical proficiency and critical thinking.
Methodology	The paper provides a structured framework for teaching prompt engineering in university courses. It draws on existing literature, practical applications, and pedagogical strategies to guide educators in integrating generative AI effectively into their university courses.
Contribution	This paper contributes to the body of knowledge by presenting a comprehensive framework for teaching prompt engineering. It highlights prompt engineering's role in enhancing AI literacy and preparing students for technology-driven academic and professional environments.
Findings	Prompt engineering enhances students' ability to generate precise and relevant outputs from AI tools by supporting student development of communication

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strategies tailored to large language models. This guide introduces essential concepts and skills that facilitate effective interaction with AI chatbots. Structured instruction in prompt engineering helps to foster critical thinking, problem-solving, and reflective interaction – key competencies for navigating an AI-driven environment. Additionally, integrating prompt engineering into education improves AI literacy, enabling students to tackle complex tasks and apply AI tools effectively across various disciplines.

Recommendations for Practitioners	Educators should integrate structured, prompt engineering instruction into their courses, emphasizing its interdisciplinary applications. Scaffolded learning will help students develop competency in applying prompt engineering techniques and strategies.
Recommendations for Researchers	Future studies should explore the long-term impact of prompt engineering instruction on academic performance and professional readiness. Additionally, research should examine its effectiveness across diverse disciplines.
Impact on Society	Teaching prompt engineering equips students with essential AI literacy skills, fostering responsible and innovative use of AI in academic, professional, and societal contexts. This contributes to a workforce better prepared for the challenges of the AI era.
Future Research	Further research should examine the integration of multimodal AI tools alongside prompt engineering to assess how combined approaches can enhance learning outcomes. In addition, studies should investigate the effectiveness of various instructional designs to identify best practices for promoting student engagement and skill development. Exploring discipline-specific and pedagogically meaningful student use cases will also be essential to guiding the thoughtful integration of AI tools across diverse educational contexts.
Keywords	generative AI, prompt engineering, AI literacy, large language models, higher education

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Meg Coffin Murray is a Professor of Information Systems in the Coles College of Business at Kennesaw State University. She holds a Ph.D. in Information Systems and has over forty years of experience in academe and industry. Dr. Murray specializes in the development and implementation of emerging technologies to meet educational, business, and societal needs. Her work involves devising strategies to assess, remediate, and amplify skills needed to leverage IT in innovation, a primary driver of economic growth. Her current focus is on the emerging role of artificial intelligence including generative AI and machine learning in both higher education and business.