

The University of Texas at Tyler
Department of Electrical and Computer Engineering
CMPE 4350: Special Topics in Computer Engineering

Syllabus

Catalog Description :

Applied Generative AI Specialization. Introduction of concepts like LLMs and generative AI. Study AI-powered applications to understand how to interate LLM into complex tasks. Get a view of tasks such as note taking, code review, summarizing videos, etc. Utilize applications in an efficient way to develop your code/note/... by harnessing the power of AI. Thus, build your research and thinking partner.

Prerequisites:

EENG 3308 Programming Languages for Design, MATH 3203 Matrix Methods for Engineers, and PHIL 2306 Technical and Scientific Ethics

Credits:

(3 hours lecture, 0 hours laboratory per week)

Text(s):

TBD

Additional Material:

TBD

Course Coordinator:

Dr. Jinran Zhang

Topics Covered: (paragraph of topics separated by semicolons)

Introduction to AI and LLM; Prompt Engineering; Examples of AI-power tools; Intelligent documentation; AI-assisted coding; Testing; An iterative workflow.

Evaluation Methods: (only items in dark print apply):

1. Examinations / Quizzes
2. Homework
3. Report
4. Computer Programming
5. Project
6. Presentation
7. Course Participation
8. Peer Review

Course Learning Outcomes¹: By the end of this course students will be able to:

1. Using prompt engineering such as steps, input/output, and performance considerations [1,2,4]
2. Leveraging tools to solve problems [1,2,4]
3. Observing output [1,2,4]
4. Analyzing the output performance from the computing perspective [1,2,4]
5. Understanding workflow [1,2,4]
6. Recognizing and avoiding syntactic, semantic, and/or logical nonsense. [1,2,4]
7. Practical advice for using AI for productivity. [4]

¹Numbers in brackets refer to the method(s) used to evaluate the course objective.

Relationship to Student Outcomes (only items in dark print apply)²: This course supports the following Electrical Engineering Student Outcomes, which state that our students will possess:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics [1-6]
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors []
3. an ability to communicate effectively with a range of audiences []
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts [7]
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives []
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions [7]
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. [7]

²Numbers in brackets refer to course objective(s) that address the Student Outcome.

Contribution to Meeting Professional Component: (in semester hours)

Mathematics and Basic Sciences:		hours
Engineering Sciences and Design:	3	hours
General Education Component:		hours

Prepared By: Jinran Zhang Date: 08 Jan, 2026
Updated By: Date:

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