Module Proforma

Module full title	Applications of AI and Prompt Engineering
SITS Module Code	4COSC017W
Credit level	Level 4
Length	Semester
UK credit value	20
ECTS credit value	10
College	Creative Arts and Technologies
School	Computer Science and Engineering
Host programme of study	BSCSS09F (BSc Artificial Intelligence FT)
Progression and assessment board	COMENG - Computing UG PAB
Pre-requisites	
Co-requisites	
Study abroad	No
Special features	
Access restrictions	
Are the module learning outcomes delivered, assessed or supported through an arrangement with organisation(s) other than the University of Westminster:	No
Summary of module content	This module provides an introduction to interactive and generative AI systems. Students will develop the skills to optimise the responses of generative AI and apply interactive AI systems to real-world problems.

Module aims

This module aims to provide you with a comprehensive understanding of interactive AI applications and the fundamentals of prompt engineering. The module focuses on developing the practical skills necessary to apply AI systems that engage users through dynamic interactions. This includes an exploration of case studies, innovative prompt strategies, and hands-on experience with interactive AI platforms.

Assessment Methods

Rank	Assessment type	Assessment name	Weighting	Qualifying Mark	Qualifying set (where the minimum mark required applies across multiple assessments)
	Coursework	Technical report	60	30	
	Presentation	Case study presentation	40	30	

Synoptic assessment

n/a

Learning outcomes

By the end of the module, the successful student will be able to:

LO1 Use principles of prompt engineering to formulate and evaluate natural language specifications for interactive AI applications.

LO2 Use diverse prompt types—including zero-shot, multi-shot, and chain-of-thought—to generate and refine AI responses.

LO3 Describe and assess the capabilities of large language models and generative AI in practical use cases.

LO4 Evaluate the safety, reliability, and fallback responses of interactive AI systems.

LO5 Communicate technical and ethical considerations effectively to an audience of peers.

Course outcomes the module contributes to

BSc Artificial Intelligence L4.03, L4.06, L4.07, L4.08

BSc Data Science and Analytics L4.01, L4.02, L4.05, L4.06, L4.07

BEng Software Engineering L4.04, L4.05

Indicative syllabus content

Capabilities of LLM and other generative AI

Natural language specifications

Types of prompt including zero-shot, multi-shot, and chain of thought

Use cases including translation and code-generation

Strategies for improving prompts

Safety and fallback responses

Ethical, sustainability and environmental considerations

Teaching and learning methods

In general, lecture materials will be pre-released a few days before the timetabled lecture, and you are expected to view this material in advance. Lecture recordings will be made available via Blackboard for revision purposes shortly after the lecture delivery.

In the lectures you will explore a comprehensive range of topics essential for understanding the principles of prompt engineering and applying them to develop applications of generative AI. You will begin with an introduction to generative AI systems and natural language specifications. As the module progresses, you'll examine how prompt engineering can be used within interactive AI systems to develop and refine sophisticated responses.

Lectures will give opportunities for discussion and reflection and will incorporate formative exercises.

Practical classes will allow you to engage in interactive, problem-based activities that deepen your practical understanding of the concepts covered in lectures. You will participate in group discussions, hands-on programming sessions, and case studies where you apply prompt engineering techniques to develop and evaluate AI applications. These activities are structured to foster critical thinking and collaborative learning, supported by quizzes and other formative assessments to help track your progress and solidify your grasp of the subject matter.

Activity type	Category	Student learning and teaching hours *
Lecture	Scheduled	24
Seminar	Scheduled	
Tutorial	Scheduled	
Project supervisor	Scheduled	
Demonstration	Scheduled	
Practical classes and workshops	Scheduled	24
Supervised time in studio/workshop	Scheduled	
Fieldwork	Scheduled	
External visits	Scheduled	
Work based learning	Scheduled	
Scheduled online learning	Scheduled	
Other learning	Scheduled	
Total scheduled		48
Placement	Placement	
Independent study	Independent	152
Total student learning and teaching hours		200

* hours per activity type are indicative and subject to change

Assessment rationale: Why has this assessment been used for this module?

The assessment for this module consists of two elements: a technical report and a presentation.

For the technical report (2700-3000 words), you will have the opportunity to apply generative AI in the development of formal code based upon a natural language specification. To achieve this, you should utilise principles from the module to formulate clear and precise prompts, employing a range of prompt types to ensure that the final output meets the provided specifications. This component will assess LO1 and LO2.

For the presentation (15 minutes), you will have the opportunity to select an interactive AI system and deliver a presentation addressing its capabilities, strengths, and limitations, how it leverages generative AI to perform its intended functions, and the safety, reliability, and fallback responses that are employed, along with their ethical and societal implications. This component will assess LO3, LO4, and LO5.

Formative assessment will be used to evaluate your understanding of the current topics and provide feedback, helping you identify areas that may need further attention.

Assessment criteria: What criteria will be used to assess my work on this module?

University Grade Descriptors are a benchmark point of reference, they are contextualised using specific subject specialist criteria specific to a particular assessment.

University Grade Descriptors

Criteria for assessments are designed with reference to the University's generic criteria to measure students' ability to meet the learning outcomes of a module. In addition, specific grade criteria are provided below:

Technical report

To what extent can the student formulate and evaluate effective natural language prompts using principles of prompt engineering;
To what extent can the student clearly articulate the rationale behind their prompt strategies using appropriate technical language;
To what extent can the student document the development and iteration of prompts, explaining how changes improved outcomes;
To what extent can the student apply a variety of prompt types to refine AI responses and justify their choices;
To what extent can the student demonstrate alignment between the final AI outputs and the original specification, supported by evidence and reasoning.

Presentation

To what extent can the student evaluate the capabilities and limitations of large language models in real-world use cases;
To what extent can the student assess safety, reliability, and fallback behaviours in interactive AI systems using relevant examples;
To what extent can the student use well-defined metrics and practical considerations to support their evaluations;
To what extent can the student communicate technical and ethical issues clearly to an audience of AI-specialist peers;
To what extent can the student deliver a clear, well-organised, and engaging presentation using appropriate visual aids and responding effectively to questions.

The exact assessment criteria that will apply to each assessment will be stated in the assessment specification and will be available on Blackboard at the time of delivery.

How will this module enhance employability?

Interactive AI applications and prompt engineering skills are pivotal in harnessing the transformative potential of generative AI. This module will equip you with the practical expertise needed to excel in professional environments where effective AI interaction design and prompt optimization are critical to driving innovation.