

# IS6620: LARGE LANGUAGE MODEL WITH PROMPT ENGINEERING FOR BUSINESS

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## Effective Term

Semester B 2025/26

## Part I Course Overview

### Course Title

Large Language Model with Prompt Engineering for Business

### Subject Code

IS - Information Systems

### Course Number

6620

### Academic Unit

Information Systems (IS)

### College/School

College of Business (CB)

### Course Duration

One Semester

### Credit Units

3

### Level

P5, P6 - Postgraduate Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

Nil

### Precursors

Nil

### Equivalent Courses

Nil

### Exclusive Courses

Nil

## Part II Course Details

### Abstract

This Master-level course in the College of Business focuses on the utilization of large language models and prompt engineering techniques for enhancing business applications. Students will explore the capabilities of state-of-the-art language models, such as ChatGPT, and learn how to effectively tailor prompts to generate desired outputs. The course will cover topics including natural language processing, text generation, sentiment analysis, and language model fine-tuning. Through a combination of theoretical lectures, hands-on exercises, and real-world case studies, students will develop the skills to leverage large language models for various business use cases, such as customer service, content creation, and market research.

### Course Intended Learning Outcomes (CILOs)

| CILOs |  | Weighting (if app.) | DEC-A1 | DEC-A2 | DEC-A3 |
|-------|--|---------------------|--------|--------|--------|
| 1     | Design the principles and fundamentals of large language models.   | 10                  |        |        |        |
| 2     | Analyze the concept of prompt engineering and its importance in achieving desired language model outputs.                        | 20                  | x      | x      |        |
| 3     | Gain proficiency in utilizing large language models for text generation and natural language processing tasks.                   | 20                  | x      | x      |        |
| 4     | Apply skills in fine-tuning language models for specific business applications.  | 20                  | x      | x      |        |
| 5     | Apply large language models to solve real-world business challenges, such as customer sentiment analysis and content generation. | 10                  | x      | x      | x      |
| 6     | Analyze ethical considerations and potential biases associated with large language models in business applications.              | 10                  | x      | x      |        |
| 7     | Relate critical thinking and problem-solving abilities through hands-on projects and case studies.                               | 10                  | x      | x      |        |

#### A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

#### A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

#### A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

### Learning and Teaching Activities (LTAs)

|   | <b>LTA</b> s              | <b>Brief Description</b>  | <b>CILO No.</b>     | <b>Hours/week (if applicable)</b> |
|---|---------------------------|---|---------------------|-----------------------------------|
| 1 | LTA1: Seminars:           | Students will learn the concepts, frameworks and strategies of large language models, its applications in business, and achieving desired language model outputs.   | 1, 2, 3, 4, 5, 6, 7 | Seminar : 39 hours                |
| 2 | LTA2: Case Studies:       | Students will discuss and analyze the effective use of large language models (e.g., ChatGPT) to solve real-world business challenges.   | 1, 2, 3, 5          |                                   |
| 3 | LTA3: Hands-on Exercises: | Students will develop the practical skills of fine-tuning language models for specific business applications, utilize large language models for text generation and natural language processing tasks, and analyze ethical considerations and potential biases associated with large language models in business applications | 2, 3, 4, 6          |                                   |
| 4 | LTA4: Project             | Students would have to complete a group project to demonstrate the ability on effectively use large language model with prompt engineering for real-world business challenges.  | 1, 2, 3, 4, 5, 6, 7 |                                   |

**Assessment Tasks / Activities (ATs)**

| ATs | CILO No.   | Weighting (%)       | Remarks ("-" for nil entry) | Allow Use of GenAI? |     |
|-----|--|---------------------|-----------------------------|---------------------|-----|
| 1   | AT1. Participation and Exercises<br>Each exercise consists of impromptu quizzes, paired/ small group discussions, role-plays, self reflection, or student presentations to assess students' understanding of the chosen topics and their abilities to apply their skills.                                  | 1, 2, 3, 4, 5, 6, 7 | 10                          | -                   | Yes |
| 2   | AT2. Group Project<br>A group project, which includes a project report and/ or a presentation, will be assigned to let students apply large language model and prompt engineering concepts and techniques to plan, develop, and/ or evaluate the business solution for some real-world business challenge. | 1, 2, 3, 4, 5, 6, 7 | 40                          | -                   | Yes |

**Continuous Assessment (%)**

50

**Examination (%)**

50

**Examination Duration (Hours)**

2

**Additional Information for ATs**

AT3: Final Examination

A written examination is developed to assess student's competence level of the topics taught.

Note: Students must pass BOTH coursework and examination in order to get an overall pass in this course.

**Assessment Rubrics (AR)**

**Assessment Task**

AT1. Participation and Exercises (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Ability to accurately describe all key concepts and principles of large language models;

**Excellent**

(A+, A, A-) High

**Good**

(B+, B, B-) Significant

**Fair**

(C+, C, C-) Moderate

**Marginal**

(D) Basic

**Failure**

(F) Not even reaching marginal levels

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**Assessment Task**

AT1. Participation and Exercises (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Ability to accurately describe the concept of prompt engineering and its importance in achieving desired language model outputs;

**Excellent**

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**Failure**

(F) Not even reaching marginal levels

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**Assessment Task**

AT1. Participation and Exercises (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Capability to creatively and effectively use large language models for text generation and natural language processing tasks;

**Excellent**

(A+, A, A-) High

**Good**

(B+, B, B-) Significant

**Fair**

(C+, C, C-) Moderate

**Marginal**

(D) Basic

**Failure**

(F) Not even reaching marginal levels

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**Assessment Task**

AT1. Participation and Exercises (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Capability to creatively and effectively fine-tuning language models for specific business applications;

**Excellent**

(A+, A, A-) High

**Good**

(B+, B, B-) Significant

**Fair**

(C+, C, C-) Moderate

**Marginal**

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**Assessment Task**

AT1. Participation and Exercises (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Capability to creatively and effectively apply large language models to solve real-world business challenges;

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**Criterion**

Ability to accurately analyze ethical considerations and potential biases associated with large language models in business applications;

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**Assessment Task**

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**Criterion**

Ability on critical thinking and problem-solving

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**Assessment Task**

AT2. Group Project (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Ability to accurately describe all key concepts and principles of large language models;

**Excellent**

(A+, A, A-) High

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**Assessment Task**

AT2. Group Project (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Ability to accurately describe the concept of prompt engineering and its importance in achieving desired language model outputs;

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**Assessment Task**

AT3. Examination (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Ability to accurately describe all key concepts and principles of large language models;

**Excellent**

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**Criterion**

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**Good**

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**Marginal**

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**Failure**

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**Assessment Task**

AT2. Group Project (for students admitted from Semester A 2022/23 to Summer Term 2024)

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# **Part III Other Information**

## **Keyword Syllabus**

Introduction to large Language Models

- Overview of large language models and their significance in business
- Deep dive into ChatGPT and other prominent language models
- Ethical considerations and biases in large language models

Prompt Engineering for Desired Outputs

- Importance of prompt engineering in achieving desired results
- Techniques for crafting effective prompts and instructions
- Strategies for refining and iterating prompts

Natural Language Processing with Large Language Models

- Sentiment analysis using language models
- Named entity recognition and information extraction
- Text classification and clustering

Text Generation and Content Creation

- Text completion and expansion with large language models
- Generating product descriptions and marketing copy
- Automated content creation for social media and blogs

Language Model Fine-Tuning for Business Applications

- Overview of fine-tuning techniques
- Domain-specific language model customization
- Fine-tuning for sentiment analysis and other business tasks

Business Use Cases for Large Language Models

- Customer service and chatbot applications
- Market research and consumer insights
- Content moderation and filtering

Case Studies and Real-World Applications

- Analysis and discussion of successful business applications of large language models
- Hands-on projects applying large language models to business challenges

- Ethical considerations and potential risks in business applications
- Future Directions and Emerging Trends
- Exploration of advancements in large language models
  - Implications of emerging models and technologies on business applications
  - Opportunities and challenges for large language models in the future

**Reading List**

**Compulsory Readings**

| Title |                        |
|-------|------------------------|
| 1     | Lecture notes in class |

**Additional Readings**

| Title |     |
|-------|-----|
| 1     | Nil |