IS5942P: ARTIFICIAL INTELLIGENCE INNOVATION AND TECHNOLOGY IN BUSINESS

Effective Term
Semester A 2026/27

Part I Course Overview

Course Title
Artificial Intelligence Innovation and Technology in Business

Subject Code
IS - Information Systems
Course Number
5942P

Academic Unit
Information Systems (IS)

College/School
College of Business (CB)

Course Duration
Non-standard Duration

Other Course Duration
Intensive mode: 3 days

Credit Units
1.5

Level
P5, P6 - Postgraduate Degree

Medium of Instruction
Other Languages

Other Languages for Medium of Instruction
Putonghua supplemented by English

Medium of Assessment
Chinese

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

Traditional business principles are evolving in order to align with the rise of blockchain, web3, Artificial Intelligence (AI), and other technologies and innovation that continues to drive the business space. This course will cover fundamental AI principles, including the technology and the practical applications, and unique characteristics of innovation in the current business environment. From understanding generative AI technologies like large language models, text-to-images systems, and digital human technologies, to exploring specific applications, students gain a holistic understanding of AI's transformative potential and the impact on businesses. Through interactive sessions and case studies, students will develop skills to assess market dynamics, craft strategic AI-driven initiatives, and make informed business decisions. By course completion, students are equipped to design and implement AI-powered solutions, positioning themselves as adept navigators of the evolving AI landscape in business.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Describe the conceptual frameworks and basic technical processes of AI.	30	x	x	x
2	Design AI-driven solutions within an innovative technology area whilst evaluating the strategies to foster business development based on market conditions and organisational objectives.	30	x	x	x
3	Apply appropriate business and feasibility models to ensure the practicality of the integration of AI.	20		x	x
4	Demonstrate creative problem-solving skills and team skills in formulating successful business strategies through participating in discussions and group activities.	20	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)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures	Students will learn the concepts, theories, techniques, and applications of big data business innovation and technology.	1, 2, 3, 4	
2	In-class Activities	Students will participate in in-class activities to discuss and share concepts, techniques, and methods in the formulation of successful AI-driven strategies.	1, 2, 3, 4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks	Allow Use of GenAI?
1	AT1: Class Participation Students shall provide valuable input to class discussions, and raise questions that demonstrate a critical and deep understanding of course content.	1, 2, 3, 4	50	-	Yes
2	AT2: Group Project Students shall utilise their understanding of AI models and implement advanced techniques and methodologies to showcase creativity and innovation in applying AI in business.	1, 2, 3, 4	50	-	Yes

Continuous Assessment (%)

100

Assessment Rubrics (AR)

Assessment Task

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

Criterion

Ability to engage in discussions and raise questions, as well as describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Excellent

(A+, A, A-) Demonstrate excellent ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Good

(B+, B, B-) Demonstrate good ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Fair

(C+, C, C-) Demonstrate moderate ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Marginal

(D) Demonstrate marginal ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Failure

(F) Demonstrate little to no ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Assessment Task

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

Criterion

Ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Excellent

(A+, A, A-) Demonstrate excellent ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Good

(B+, B, B-) Demonstrate good ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Fair

(C+, C, C-) Demonstrate moderate ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Marginal

(D) Demonstrate marginal ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Failure

(F) Demonstrate little to no ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Assessment Task

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

Criterion

Ability to describe the fundamental concepts and elements of AI models and their applications in business.

Excellent

(A+, A, A-) Demonstrate excellent ability to describe the fundamental concepts and elements of AI models and their applications in business.

Good

(B+, B, B-) Demonstrate good ability to describe the fundamental concepts and elements of AI models and their applications in business.

Fair

(C+, C, C-) Demonstrate moderate ability to describe the fundamental concepts and elements of AI models and their applications in business.

Marginal

(D) Demonstrate marginal ability to describe the fundamental concepts and elements of AI models and their applications in business.

Failure

(F) Demonstrate little to no ability to describe the fundamental concepts and elements of AI models and their applications in business.

Assessment Task

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

Criterion

Ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

Excellent

(A+, A, A-) Demonstrate excellent ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

Good

(B+, B, B-) Demonstrate good ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

Fair

(C+, C, C-) Demonstrate moderate ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

Marginal

(D) Demonstrate marginal ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

Failure

(F) Demonstrate little to no ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

Assessment Task

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

Criterion

Ability to demonstrate creative problem-solving skills and team skills in formulating successful business strategies.

Excellent

(A+, A, A-) Demonstrate excellent creative problem-solving skills and team skills in formulating successful business strategies.

Good

(B+, B, B-) Demonstrate good creative problem-solving skills and team skills in formulating successful business strategies.

Fair

(C+, C, C-) Demonstrate moderate creative problem-solving skills and team skills in formulating successful business strategies.

Marginal

(D) Demonstrate marginal creative problem-solving skills and team skills in formulating successful business strategies.

Failure

(F) Demonstrate little to no creative problem-solving skills and team skills in formulating successful business strategies.

Assessment Task

Class Participation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Ability to engage in discussions and raise questions, as well as describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Excellent

(A+, A, A-) Demonstrate excellent ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Good

(B+, B) Demonstrate good ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Marginal

(B-, C+, C) Demonstrate moderate ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Failure

(F) Demonstrate little to no ability to engage in discussions and raise questions, as well as to describe the fundamental AI principles and unique characteristics of innovation in the current business environment.

Assessment Task

Class Participation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Excellent

(A+, A, A-) Demonstrate excellent ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Good

(B+, B) Demonstrate good ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Marginal

(B-, C+, C) Demonstrate moderate ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Failure

(F) Demonstrate little to no ability to analyse and evaluate the applications and business prospects of AI-driven strategies.

Assessment Task

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

Criterion

Ability to describe the fundamental concepts and elements of AI models and their applications in business.

Excellent

(A+, A, A-) Demonstrate excellent ability to describe the fundamental concepts and elements of AI models and their applications in business.

Good

(B+, B) Demonstrate good ability to describe the fundamental concepts and elements of AI models and their applications in business.

Marginal

(B-, C+, C) Demonstrate moderate ability to describe the fundamental concepts and elements of AI models and their applications in business.

Failure

(F) Demonstrate little to no ability to describe the fundamental concepts and elements of AI models and their applications in business.

Assessment Task

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

Criterion

Ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

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(A+, A, A-) Demonstrate excellent ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

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(B-, C+, C) Demonstrate moderate ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

Failure

(F) Demonstrate little to no ability to apply appropriate techniques and methodologies to showcase creativity and innovation.

Assessment Task

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

Criterion

Ability to demonstrate creative problem-solving skills and team skills in formulating successful business strategies.

Excellent

(A+, A, A-) Demonstrate excellent creative problem-solving skills and team skills in formulating successful business strategies.

Good

(B+, B) Demonstrate good creative problem-solving skills and team skills in formulating successful business strategies.

Marginal

(B-, C+, C) Demonstrate moderate creative problem-solving skills and team skills in formulating successful business strategies.

Failure

(F) Demonstrate little to no creative problem-solving skills and team skills in formulating successful business strategies.

Part III Other Information

Keyword Syllabus

- Machine Learning
- Large Language Models, Multimodal Large Language Models
- Digital Human Technology, AI Generated Content
- Text-to-Image Models, Text-to-Video Models
- Commercial Applications of Cutting-edge Models

Reading List

Compulsory Readings

	Title
1	Cuenca, P., Passos, A., Sanseviero, O., & Whitaker, J. (2024). Hands-on generative AI with transformers and diffusion models. First edition. Sebastopol, CA: O'Reilly Media, Inc
2	Parsing, C. (2023). Speech and language processing. 3rd edition. Power Point Slides.
3	Konstantopoulos, S., Perantonis, S., Karkaletsis, V., Spyropoulos, C. D., & Vouros, G. (2010). Artificial Intelligence: Theories, Models and Applications. Lecture Notes in Computer Science, 6040.
4	Zhao, W. X., Zhou, K., Li, J., Tang, T., Wang, X., Hou, Y., ... & Wen, J. R. (2023). A survey of large language models. arXiv preprint arXiv:2303.18223.
5	Rombach, R., Blattmann, A., Lorenz, D., Esser, P., & Ommer, B. (2022). High-resolution image synthesis with latent diffusion models. In Proceedings of the IEEE/CVF conference on computer vision and pattern recognition (pp. 10684-10695).
6	Ho, J., Salimans, T., Gritsenko, A., Chan, W., Norouzi, M., & Fleet, D. J. (2022). Video diffusion models. Advances in Neural Information Processing Systems, 35, 8633-8646.
7	Ho, J., Jain, A., & Abbeel, P. (2020). Denoising diffusion probabilistic models. Advances in neural information processing systems, 33, 6840-6851.

Additional Readings

	Title
1	Gupta, A., Mukhopadhyay, R., Balachandra, S., Khan, F. F., Namboodiri, V. P., & Jawahar, C. V. (2023). Towards generating ultra-high resolution talking-face videos with lip synchronization. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (pp. 5209-5218).
2	Zhang, W., Cun, X., Wang, X., Zhang, Y., Shen, X., Guo, Y., ... & Wang, F. (2023). Sadtalker: Learning realistic 3d motion coefficients for stylized audio-driven single image talking face animation. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (pp. 8652-8661).
3	Ouyang, L., Wu, J., Jiang, X., Almeida, D., Wainwright, C. L., Mishkin, P., ... & Lowe, R. (2022). Training language models to follow instructions with human feedback, 2022. URL https://arxiv.org/abs/2203.02155, 13, 1.
4	Hertz, A., Mokady, R., Tenenbaum, J., Aberman, K., Pritch, Y., & Cohen-Or, D. (2022). Prompt-to-prompt image editing with cross attention control. arXiv preprint arXiv:2208.01626.
5	Wei, J., Bosma, M., Zhao, V. Y., Guu, K., Yu, A. W., Lester, B., ... & Le, Q. V. (2021). Finetuned language models are zero-shot learners. arXiv preprint arXiv:2109.01652.
6	Hu, E. J., Shen, Y., Wallis, P., Allen-Zhu, Z., Li, Y., Wang, S., ... & Chen, W. (2021). Lora: Low-rank adaptation of large language models. arXiv preprint arXiv:2106.09685.
7	Brown, T., Mann, B., Ryder, N., Subbiah, M., Kaplan, J. D., Dhariwal, P., ... & Amodei, D. (2020). Language models are few-shot learners. Advances in neural information processing systems, 33, 1877-1901.