City University of Hong Kong
Course Syllabus

offered by Department of Computer Science
with effect from Semester B 2018/19

Part I Course Overview

Course Title:	Artificial Intelligence – Past, Present, and Future
Course Code:	GE2340
Course Duration:	1 Semester
Credit Units:	3 credits
Level:	A2, B2
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐2 Study of Societies, Social and Business Organisations ☐1 Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	None
Precursors: *(Course Code and Title)*	None
Equivalent Courses: *(Course Code and Title)*	None
Exclusive Courses: *(Course Code and Title)*	None

Part II Course Details

1. Abstract

(A 150-word description about the course)

This AI course is suitable for both technical and non-technical students alike. It aims to firstly provide an overall view of what is AI, its developments over the past decades, its current trends, and a look at potential future directions. It will cover impact of AI to society and business. Through case studies, students gain a better insight on different AI technologies and how they can be used to address a wide range of social and business needs. The course will broaden students' understanding of current state-of-the-art in AI and future trends, as well as how various needs of different industries can be addressed through innovative use of AI. The second objective of this course is to help students become creative innovators in applying "AI first" concepts to solving real-world problems through project-based work. This course will be useful for students from any discipline and will give insights to the value of AI across industries from a global point of view as well as issues related to their ethical use. To make this course as widely accessible to as many people as possible from any background, no programming will be required and no prior programming skills are assumed.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs#	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Explain examples of how AI benefits everyday life through innovative solutions.	35%	✓		
2.	Explore and analyze the use and impact of AI in different industries around the world and current trends in AI.	35%		✓	
3.	Design and prototype an application of AI to solve current business, industry, or social need.	30%			✓
		100%			

** If weighting is assigned to CILOs, they should add up to 100%.*

 # Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

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 self-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.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

Teaching pattern:

Suggested lecture/tutorial/laboratory mix: 3 hrs. lecture/tutorial

TLA	Brief Description	CILO No.			Hours/week (if applicable)
		1	2	3	
Lecture & In-Class Discussion	Case studies of AI applications and how they change the way we work and play throughout history and present day will be covered in lectures. Current trends will be explored. Students will further strengthen what they learned in class with in-class discussions. Students are expected to share what they learned with others during in-class presentations and participations. Students will be given opportunities to learn with hands-on experience on AI applications related to the lecture.	✓	✓	✓	3 hrs/wk
Reading Report	Reference materials are assigned to students to read. They report the technical summary and findings including impact of AI to industry and society. To encourage critical thinking, students should also write their opinion and express their new perspectives from the study.	✓	✓	✓	

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.			Weighting*	Remarks
	1	2	3		
Continuous Assessment: 60%					
Weekly quiz	✓	✓	✓	10%	
Reading Report	✓	✓	✓	10%	
Team Project	✓	✓	✓	40%	
Examination^: 40% (duration: 2 hours)					
** The weightings should add up to 100%.*				100%	

^ For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

For the Team Project: Students will be grouped in teams to work on an independent proposal and high-level design of an "AI-first" system for a particular social or industry need. A report should be generated by each team to document their research, critical comparison and analysis, and their new ideas. The weekly progress of their project work should be logged and may be selected to be presented in the class. Each team will be required to give a formal presentation at the end of the semester.

For the Examination: the alignment with the CILOs will be as follows:
The final examination questions will cover each of the CILOs roughly similarly, i.e. one-third each:
CILO#1 - Explain examples of how AI benefits everyday life through innovative solutions.

There will be questions to assess students' knowledge of what AI can do and how it can be used to solve daily problems and needs as well as be able to identify specific benefits offered by AI.

CILO#2 - Explore and analyze the use and impact of AI in different industries around the world.

There will be questions to assess students' knowledge of various real-world applications of AI, what problems it solve, benefits it brings as well as potential challenges and issues.

CILO#3 - Understand current trends in AI, and design and prototype an application of AI to solve current business, industry, or social need.

There will be questions to assess students' knowledge of current new trends and directions in AI, as well as questions related to their projects and the role and importance AI plays.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Weekly quiz	1.1 ABILITY to articulate answer in a very clear and precise manner, demonstrating a firm knowledge of the subject. 1.2 DEMONSTRATE ability for critical thinking and analysis 1.3 PROVIDE rich and strong evidence and arguments to support and justify answer. 1.4 SHOW good command of English.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Reading Report	2.1 ABILITY to provide precise summary of the assigned readings and show comprehensive understanding of the study. 2.2 ABILITY to make real connections between the study and own experience and learning. EXPLAIN the impact of the subject (people/technology/..) with evidences. 2.3 CAPACITY to demonstrate new perspectives and insights from the study. 2.4 ABILITY to report in a well-organised way with logical flow of thoughts. Correct use of English, free of errors in grammar, punctuation and spelling. Layout and use of graphics facilitate communication. All references (including images) are accurately acknowledged.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Team Project	3.1 ABILITY to provide thorough summary of current AI development with good highlights of significant people / technology / incidents / events. Variety of example cases is included to exemplify the current development with critical comparison and analysis. 3.2 ABILITY to describe in-depth possible industrial / societal needs and the social impact of AI. Provide relevant statistics and figures to substantiate the impact. 3.3 ABILITY to make real connections between the study and own experience and learning and CAPACITY to demonstrate new perspectives and insights from the study. Every idea is logically supported by relevant facts, and	High	Significant	Moderate	Basic	Not even reaching marginal levels

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
	includes judgment of the reliability of data. 3.4 ABILITY to report in an organised way and use of sections is logical and allows easy navigation through the document. All graphical documents, sketches and maps are creative, professional and strongly support the text. All sources correctly and thoroughly documented. All ideas borrowed are duly acknowledged in the text. Appropriate citation forms are utilized throughout. Reference section complete, comprehensive and follows standard format. 3.5 ABILITY to present in a clear, logical, interesting sequence which audience can follow. Use of creative and effective visual aids that easily hold audience's attention. Delivery should be clear, concise, correct and complete.					
4. Examination	4.1 ABILITY to articulate answer in a very clear and precise manner, demonstrating a firm knowledge of the subject. 4.2 DEMONSTRATE ability for critical thinking and analysis 4.3 PROVIDE rich and strong evidence and arguments to support and justify answer. 4.4 SHOW good command of English.	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

Turing test, artificial neural network, expert systems, intelligent search, natural language understanding, chatbot, big data/data mining, game playing, deep learning, evolutionary algorithms, machine learning, computer vision, predictive analytics, reinforcement learning, supervised/unsupervised learning, robotics, planning, scheduling, optimization, AI applications in medicine/health, fintech, smart city, lawtech, insurtech, etc.

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	All material will be from online resources.

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	Freely available Web-based resources will be used.

Annex
(for GE courses only)

A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

GE PILO	Please indicate which CILO(s) is/are related to this PILO, if any *(can be more than one CILOs in each PILO)*
PILO 1: Demonstrate the capacity for self-directed learning	This course leads students to relate AI to everyday life (CILO1). Through case studies and research, students can see not only the trend of AI use (CILO3) but also are able to analyse the impact of AI in different contexts (CILO2).
PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology	This course is not only about AI per se. It covers the needs of societies, governments, businesses, and arts and sciences and how people made use of AI to help solve they needs. It is also related to how AI has changed the way we work and play. Through this study, students acquire a better understanding of how AI technology might be used to support different aspects of our life, including those that span arts and humanities, social sciences, etc. Through the semester project, students will explore and design new AI applications in different disciplines of their choosing. (CILO1-3)
PILO 3: Demonstrate critical thinking skills	Critical thinking skills will be developed when students document their thoughts and opinions in their reading reports after performing online research and reading on pre-defined topics. Students will be randomly selected to present their thoughts in class. (CILO1-3)
PILO 4: Interpret information and numerical data	Students will collect information and numerical figures in the reading assignments and research for the project to analyse the use and impact of AI in various domains. (CILO2)
PILO 5: Produce structured, well-organised and fluent text	The semester-long project will require students to analyze and understand a selected problem or issue, find case studies, perform research studies, analyze benefits, find cultural differences, formulate opinions, as well as design and prototype a potential AI solution. Analytical skills will be exercised when students write their reading assignment report. (CILO1-3)
PILO 6: Demonstrate effective oral communication skills	Students are selected randomly to present their reading reports. In addition, students are required to give a formal presentation of their semester project at the end of the semester. (CILO1-3)
PILO 7: Demonstrate an ability to work effectively in a team	The semester-long project is a team project. Each team is required to report their progress regularly. The in-class activities also encourage teamwork. (CILO1-3)
PILO 8: Recognise important characteristics of their own culture(s) and at least one other culture, and their impact on global issues	-
PILO 9: Value ethical and socially responsible actions	The course will discuss ethical use of AI and various moral and social concerns. (CILO1-3)
PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation	Students demonstrate the attitude and ability to accomplish discovery and innovation in the AI project that they will design and prototype. (CILO1-3)

GE course leaders should cover the mandatory PILOs for the GE area (Area 1: Arts and Humanities; Area 2: Study of Societies, Social and Business Organisations; Area 3: Science and Technology) for which they have classified their course; for quality assurance purposes, they are advised to carefully consider if it is beneficial to claim any coverage of additional PILOs. General advice would be to restrict PILOs to only the essential ones. (Please refer to the curricular mapping of GE programme: http://www.cityu.edu.hk/edge/ge/faculty/curricular_mapping.htm.)

B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task
Semester team project Final Report and Presentation file on the use of AI to solve social or industry needs.