



CUHK Jockey Club AI for the Future Project
中大賽馬會智為未來計劃

CUHK Jockey Club AI for the Future Project

Phase II Orientation Day

30 September 2022

Co-organized by:



The Chinese University of Hong Kong
Faculty of Engineering
Faculty of Education

Funded by:



The Hong Kong Jockey Club Charities Trust

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Agenda

- (1) Project Introduction and Support to Schools**
- (2) Roles of Participating Schools**
- (3) Teacher Sharing**
- (4) Evaluation Survey**
- (5) Q&A Session**

(1) Project Introduction and Support to Schools

Phase I and Phase II

	Phase I	Phase II
Years	3	4
Duration	08/2019 to 07/2022	08/2022 to 07/2026
Vision	To develop AI curriculum	To mainstream AI education
Participating Schools	63 (13.49%)	238 (50.96%) (Current: 164)
Participating Teachers	212 2 to 3 teachers per school	1,724 2 to 3 teachers per school
Participating Students	17,000	72,408

Recruitment of Phase II Participating Schools

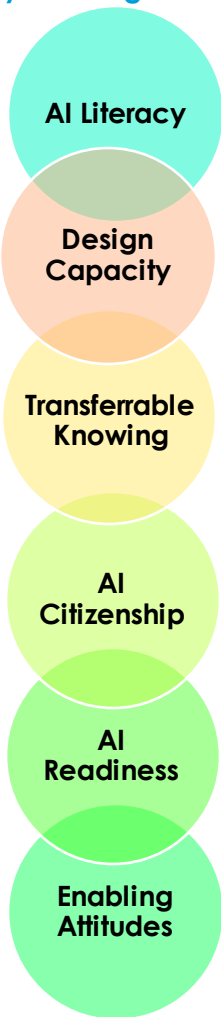
All Year Round Application



Phase I - Outcomes

Key Learning Outcomes

Students



90% of students have enhanced **knowledge** of AI **technologies** and the awareness and understanding of the importance of AI

Over 85% of students agreed the Curriculum had enhanced their **21st-century skills**, such as creativity and critical thinking

85% of students found themselves more **able to apply** the knowledge and skills acquired in AI lessons

Over 85% of students gained better knowledge of the **ethical, governance, and safety challenges** posed by AI and technological innovations. They will pay more attention to the **societal impacts from AI**.

Over 80% of students feel that they **are better prepared** for the changes in the future workplace brought by AI

Over 80% of students have higher **confidence and motivation** in learning AI

Professional Development Goals

Teachers



Near 100% of teachers have gained both **pedagogical and technical knowledge** of designing and using AI educational resources for teaching and learning, as well as **knowledge to facilitate students'** selection of the AI technologies to be incorporated into project-based learning

Over 95% of teachers have **gained the confidence** to facilitate students' engagement in inquiry-based learning on AI topics. They **are willing to continue enriching their education practice** with new AI topics after the Project period

90% of teachers **are competent in using the educational resources** developed in the Project for AI teaching

18 mentor teachers are nurtured

Around 85% of teachers can use the teaching management platform for data collection, analytics, and evaluation to **facilitate pedagogical refinements**

Phase I - Achievements



Over **400** students have participated in the competitions in 2020 and 2021



Participated in **Learning & Teaching Expo 2021** with booth exhibition, AI summit and AI workshops



60 students participated in the boot camp in 2020
60 students and **75** parents have participated in the summer camp 2021



Promotion of the Project to general public via different publicity efforts (i.e., promotional materials, social media platforms, videos)

Phase I - Achievements

Awards

Gold Award winner of HKICT Awards 2021 Smart People Award (Smart Education and Learning)

Nominated by CUHK to Falling Walls Engage 2021 – Science Engagement



Academic Publication

Published an **academic paper** entitled “Creation and Evaluation of a Pre-tertiary Artificial Intelligence (AI) Curriculum” in IEEE Transactions on Education



Media Coverage

Cooperated a one-year **bi-weekly column** with Wen Wei Po education page

Attracted **over 30 media coverage**



Others

Invited by HKSARG to comment on the equipment list of **IT labs of secondary schools**

Invited by ITB for **video promotion of Smart City 2.0**



Artificial Intelligence is included in **CUHK Strategic Plan 2021-2025**



Core Professors Team



Professor Helen MENG

Co-Principal Investigator
Curriculum Development Team Head
Assessment and Evaluation Team Co-Head



Professor YAM Yeung

Principal Investigator



Professor CHAI Ching Sing

Co-Principal Investigator
Assessment and Evaluation Team Head



Professor Savio WONG

Curriculum Development Team Co-Head
Teacher Development and
School Engagement Team Co-Head



Professor Thomas CHIU

Teacher Development and
School Engagement Team Head



Professor Irwin KING

E-Platform Team Head

Curriculum Professors



Professor FU Chi Wing, Philip

Associate Professor of
Department of Computer
Science and Engineering



Professor LIU Xunying

Associate Professor of Department of
Systems Engineering and Engineering
Management



Professor LAM Wai

Professor of Department of
Systems Engineering and
Engineering Management



Professor SO Man Cho Anthony

Associate Dean (Student Affairs) of Faculty
of Engineering, Professor of Department of
Systems Engineering and Engineering
Management



Professor LAU Tat Ming, Darwin

Assistant Dean (Student Affairs) of
Faculty of Engineering
Assistant Professor of Department of
Mechanical and Automation Engineering



Professor WONG Tien Tsin

Professor of Department of
Computer Science and
Engineering



Professor LIN Dahua

Associate Professor of Department
of Information Engineering



Professor ZHOU Bolei

Assistant Professor of
Department of
Information Engineering

Additional
3 Postdoctoral
Fellows
9 Research
Assistants

New Professors for Extended Modules



Professor YIU Chun Chong, Josh
Director of the CUHK Art Museum



Professor WONG Suk Ying
Master, C.W. Chu College, CUHK
Professor, Department of Sociology



Professor FINGRUT Adam
Assistant Professor,
School of Architecture



Professor KWAN Mei Po
Choh-Ming Li Professor of Geography
and Resource Management



Professor DOU Qi
Assistant Professor, Department of
Computer Science & Engineering

Project Components



AI Curriculum Development

- Chapters and Modules
- Co-creation with Local Schools

E-Platform

- Knowledge and Education
- Exchange Platform and Interactive Learning Platforms

Teacher Development and School Engagement

- Briefing, Open Classes, Workshops and Sharing Sessions for Teachers

Public Education and Dissemination

- AI Summit, Summer Camp, AI Lab Open Day and AI Competition, etc.

Assessment and Evaluation

- Evaluation Student Learning, Attitudes, Skills, Curriculum and Pedagogy

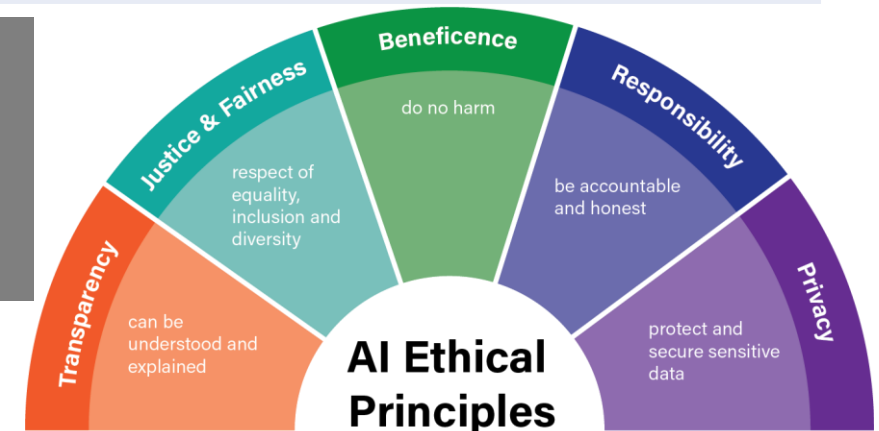
Support to Schools

a. Teaching Material – Teaching and Learning Pack

Chapter	Topic	Chapter	Topic
1	Introduction to AI	7	AI Reasoning
2	Fundamentals of AI	8	Simulation
3	See	9	Think and Create
4	Hear	10	Social Good, Social Impacts and Challenges of AI
5	Speak	11	AI and Ethics
6	Read	12	AI and Future of Work



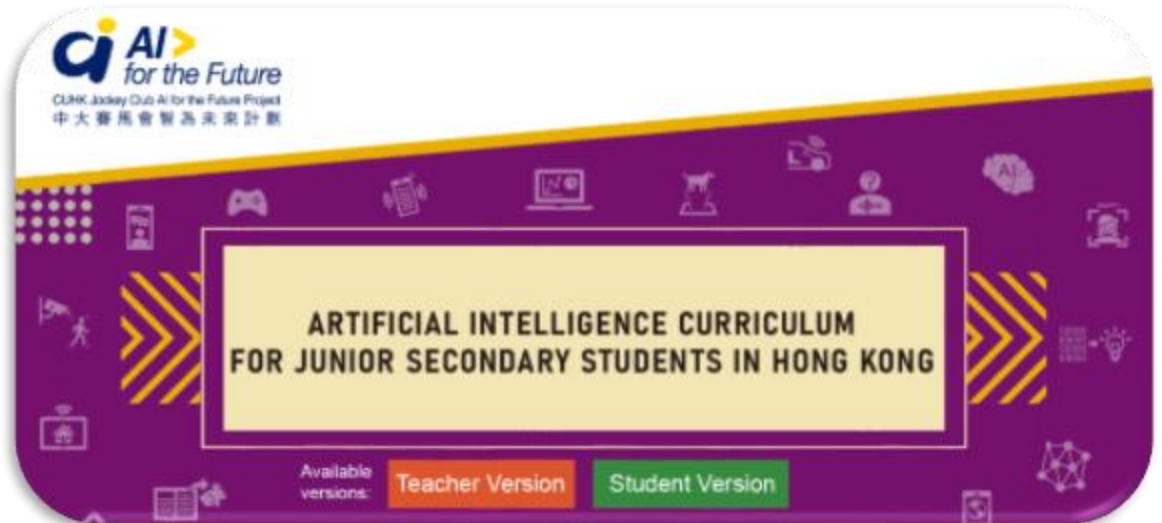
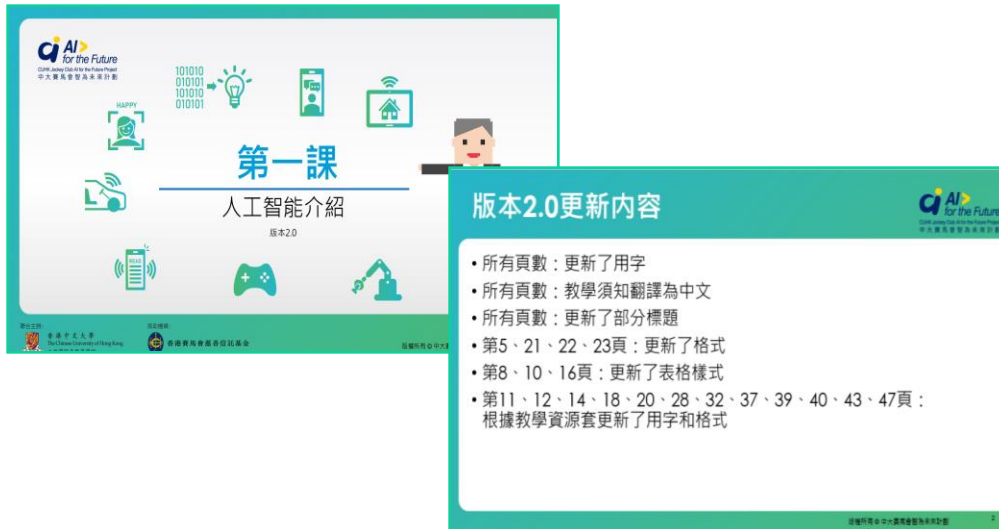
12 Chapters with 55+ Modules



Support to Schools

a. Teaching and Learning Pack

- Bilingual Textbook (EN & TC)
 - Teacher Version
 - Student Version
- Teaching PPTs (version 2.0)



Phase I 08/2019 – 07/2022



- 12 Chapters
- 55 Modules
- AKE + IN + EM

Phase II 08/2022 – 07/2026



- More IN + EM
- Four Extended Modules

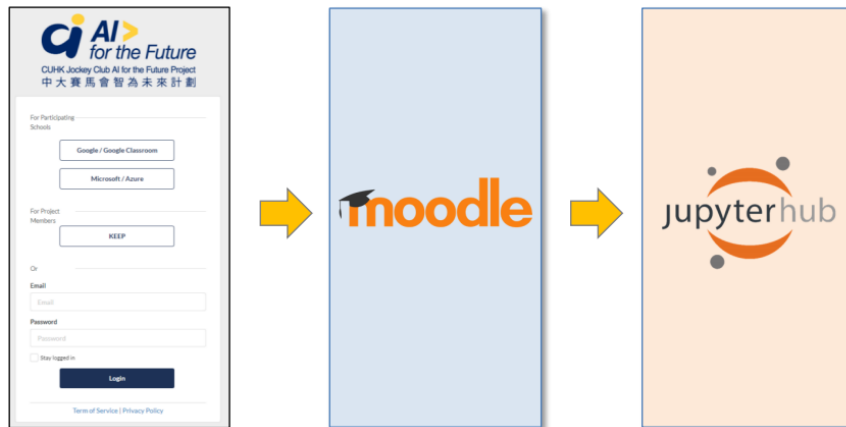
Support to Schools

a. Teaching Material

- 4 new extended modules (EX) on Moodle
- Target students
 - Senior secondary students (S4 to S5)
 - Motivated students (S1 to S3)
- New Professors for EX modules development
- A/K/E Self-directed Learning Videos
 - 35 to 60 minutes for each A/K/E video
 - **A**wareness, **K**nowledge, **E**thics
 - Extracted from the Teaching and Learning Pack

Support to Schools

b. E-Platform



Student Surveys

This course contains:

- Consent Form
- Student Survey (e.g., Pre-survey, Post-survey)



Master Course

This course contains all the most updated set of learning and teaching materials of the AI Curriculum, including:

- Teaching PowerPoint Notes
- Teaching and Learning Package
- Self-directed Learning Videos
- Online AI Experiments
- Chapter End Assessment Exercises



Interaction and Empowerment Experiments

This course contains all the shortcut links of Interaction and Empowerment Experiments.



E-Platform Portal

This course contains all the shortcut links in the E-Platform.

Demo

Support to Schools

b. E-Platform (Online Interactive Experiment)



Chapter 6 - Read

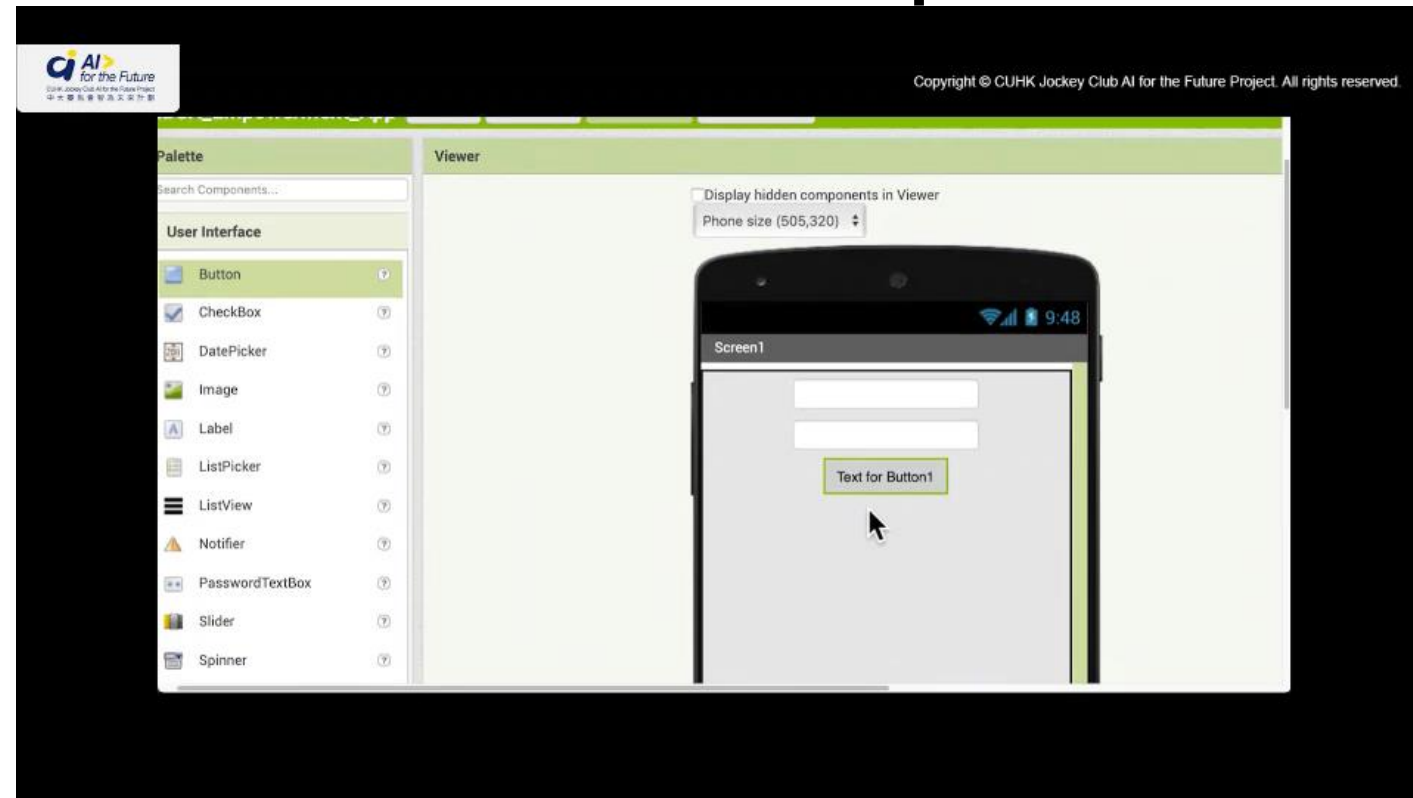
Python

Blocky

ApplInventor

```
22 from django.conf.urls import static
23
24 urlpatterns = (
25     url(r'^$', home),
26     url(r'^price/$', price),
27     url(r'^about/$', about),
28     url(r'^platforms/$', platforms),
29     url(r'^demo_report/$', demo_report),
30     url(r'^accounts/login/$', login, {'template_name': 'login.html'}),
31     url(r'^accounts/logout/$', logout, {'template_name': 'logout.html'}),
32     url(r'^accounts/profile/$', profile),
33     url(r'^accounts/register/$', register),
34     url(r'^upload/$', upload),
35     url(r'^report/$', report),
36     url(r'^report/evaluation/(?P<id>[0-9]+)$', report_evaluation),
37     url(r'^automata/(?P<id>[0-9]+)$', gen_automata),
38     url(r'^testcase_report/(?P<pid>[0-9]+)/(?P<reportName>.+)$', testcase_report),
39     url(r'^testcase_detail/(?P<pid>[0-9]+)/(?P<reportName>.+)$', testcase_detail),
40     url(r'^project/$', project),
41     url(r'^project/new_projects/$', newProjects),
42     url(r'^project/processing_projects/$', processingProjects),
43     url(r'^project/success_projects/$', successProjects),
44     url(r'^project/error_projects/$', errorProjects),
45     url(r'^project/setting/(?P<id>[0-9]+)$', projectSetting),
46     url(r'^project/detail/(?P<id>[0-9]+)$', projectDetail),
47     url(r'^project/send_success/(?P<id>[0-9]+)$', sendSuccess),
48     url(r'^device/$', device),
49     url(r'^user/$', user),
50 ]
```

Example Web API developed by CUHK in the mobile app to Collect-Based Sentiment Analysis



b. E-Platform (Assessment Exercises)



4. 以下哪一個智能手機功能**不是**AI 技術應用？

- A. 從聯絡人名單中尋找朋友
- B. 人臉識別相機
- C. 虛擬助理
- D. 自動圖像註解

5. 以下哪一項應用運用了 AI 技術？

- A. 無人駕駛汽車
- B. 聊天機械人
- C. AI 虛擬助理
- D. AI 假新聞生成器

6. 以下哪項是 AI 的功能？

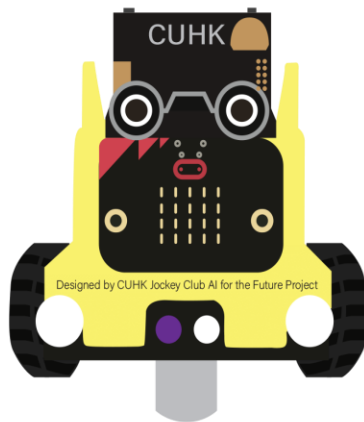
- (1) 使用人類語言
- (2) 形成概念
- (3) 自我學習
- (4) 模擬人類智慧

- A. (1)、(2) 和 (4)
- B. (1) 和 (4)
- C. (2) 和 (3)
- D. 以上皆是

Support to Schools

c. CUHK-JC iCar

- Hands-on AI application exploration for beginners
- 15 per School
- New version distribution: 2023 Q4 (subject to manufacturing progress)



**15 sets of new version of “CUHK-JC iCar”
(at the value of HK\$2,500 each)**

Support to Schools



Teacher AI Knowledge Enrichment Scheme (TAKES)

- Onsite workshops at CUHK
- Outreach workshops: “Teaching Ambassadors Outreach Programme”
- Online Self-directed Learning Modules
- Route to go for “Teaching Competence Evaluation and Certificate System”



Teaching Competence Evaluation and Certificate System (TCECS)

- Designed for eligible teachers to apply to be Certified AI Educators



School Mentoring Scheme

- Support from Champion Schools through sharing sessions and lesson observations



A Wide Range of Educational Events and School Promotions

Teacher AI Knowledge Enrichment Scheme

AI教學增值計劃 (TAKES)

**Onsite Workshops
at CUHK**



**Outreach Workshops
at Designated Phase II
Participating Schools**



**Online Self-directed
Learning Modules**

Teacher AI Knowledge Enrichment Scheme

AI教學增值計劃 (TAKES)

i. 10-hr Onsite Teacher Workshops at CUHK

- Session A
 - Basic AI Knowledge + Common AI Teaching Software Tools
- Session B
 - Hands-on Project
 - Peer sharing
 - Collaborative lesson planning workshop
- Tentative Schedule
 - Dec 2022 (both sessions)
 - Apr 2023 (both sessions)

Teacher AI Knowledge Enrichment Scheme

AI教學增值計劃 (TAKES)

ii. 3-hr Teaching Ambassador Outreach Programme (TAOP)

- Course Title: Experiencing AI and CUHK-JC iCar
- Content (to be delivered by Project Staff and Student Ambassadors)
 - Basic AI concepts
 - AI application (CUHK-JC iCar)
- Tentative Schedule
 - October 2022, May/June 2023
- Venue
 - Champion Schools

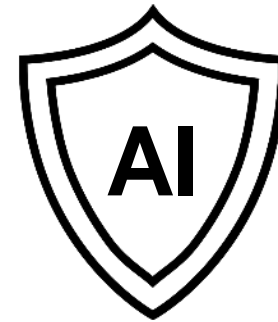
Teacher AI Knowledge Enrichment Scheme

AI教學增值計劃 (TAKES)

iii. 10-hr Optional Online Self-learning Modules

- For teachers' self-directed learning via the E-platform

iv. Route to go for the evaluation and certificate system



Certified AI Educator

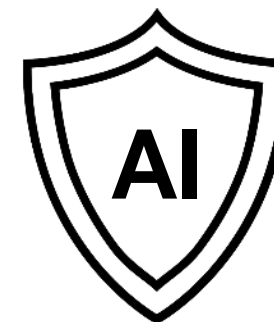
Teaching Competence Evaluation and Certificate System

AI教學認證計劃 (TCECS)

**Completion
of Teacher AI Knowledge
Enrichment Scheme**



**Peer lesson observation/
Lesson plan(s)/
Worksheet(s)/
Reflective essay**



Certified AI Educator

Composition of the Reviewing Panel



1. Professor Thomas CHIU, Chairman
2. Professor Savio WONG, Vice-Chairman
3. One representative from each Champion School

Upcoming Key Events

Year	Duration	Event
2022	September	Secondary School AI Competition 2022
	October	Teaching Ambassador Outreach Programme (TAOP) – first round
	13 to 14 October	ICT Expo 2022
	4 November	Phase II Announcement Ceremony
	7 to 9 December	L&T Expo 2022
	1 and 15 December	Onsite Teacher Workshops 2022 – first round
2023	20 and 27 April	Onsite Teacher Workshops 2022 – second round
	April	Teaching Ambassador Outreach Programme (TAOP) – second round
	May	Teaching Ambassador Outreach Programme (TAOP) – third round
	July	AI Summer Camp 2023

(2) Roles of Participating Schools

Main Duties of Participating Schools

AI Curriculum Development

- Engage **at least 84 new participating students** in every academic year throughout the whole Phase II
- Implement **at least 3 Chapters** of the enriched AI Curriculum
- Deliver the **Extended (EX) Modules** of the AI Curriculum as **ECA**



Teacher Development

- Actively participate in the **School Mentoring Scheme**
- Assign 1 or more teacher to attend teacher workshops under the **Teacher AI Knowledge Enrichment Scheme (TAKES)**



Assessment and Evaluation

- Instruct all students to engage in the AI Curriculum to participate in the **Assessment Exercises** and **AI Literacy Tests** via the Project's E-platform
- Actively participate in **evaluations** (surveys, focus groups) conducted by the Project Team throughout each Project Year



Others

- Actively participate in various **Project Events** and **publicity initiatives**
- Furnish a **dedicated computer room** and basic infrastructure, tools, and equipment for delivering the AI Curriculum



Assessment and Evaluation

2022/23 Target

- 12,432 Participating Students (84 students from each school)
- 296 Participating Teachers (2 to 3 teachers from each school)

	Student	Teacher
Pre-survey	5 September 2022 – 31 January 2023	
Post-survey	1 February – 14 July 2023	
Post-lesson interview	April – July 2023	
AI literacy test (pilot testing)	June - July 2023	N/A

ALL schools will participate in Pre- and Post-Surveys, and AI literacy test

Selected schools will be invited to participate in the post-lesson interview

(3) Teacher Sharing

Teacher Sharing

- Theme 1

- The Ultimate AI Education for All Students
- 普及本地 AI 教育的機遇
- Speaker: Mr Michael NIP from Diocesan Girls' School (DGS)

- Theme 2

- How to Improve Learning Motivation with AI Curriculum and Online Experiments?
- 如何運用 AI 課程和網上實驗提高學習動機？
- Speaker: Mr Eric CHAN from Ying Wa College (YWC)

- Theme 3

- AI Ethics Education
- 如何在課程中引導學生思考 AI 倫理議題？
- Speaker: Mr Tommy WONG from Munsang College (MSC)

(4) Evaluation Survey

Evaluation Survey

Please scan the QR code to complete the survey.



(5) Q&A Session

