

8) 學校資訊科技支援學教相關基建

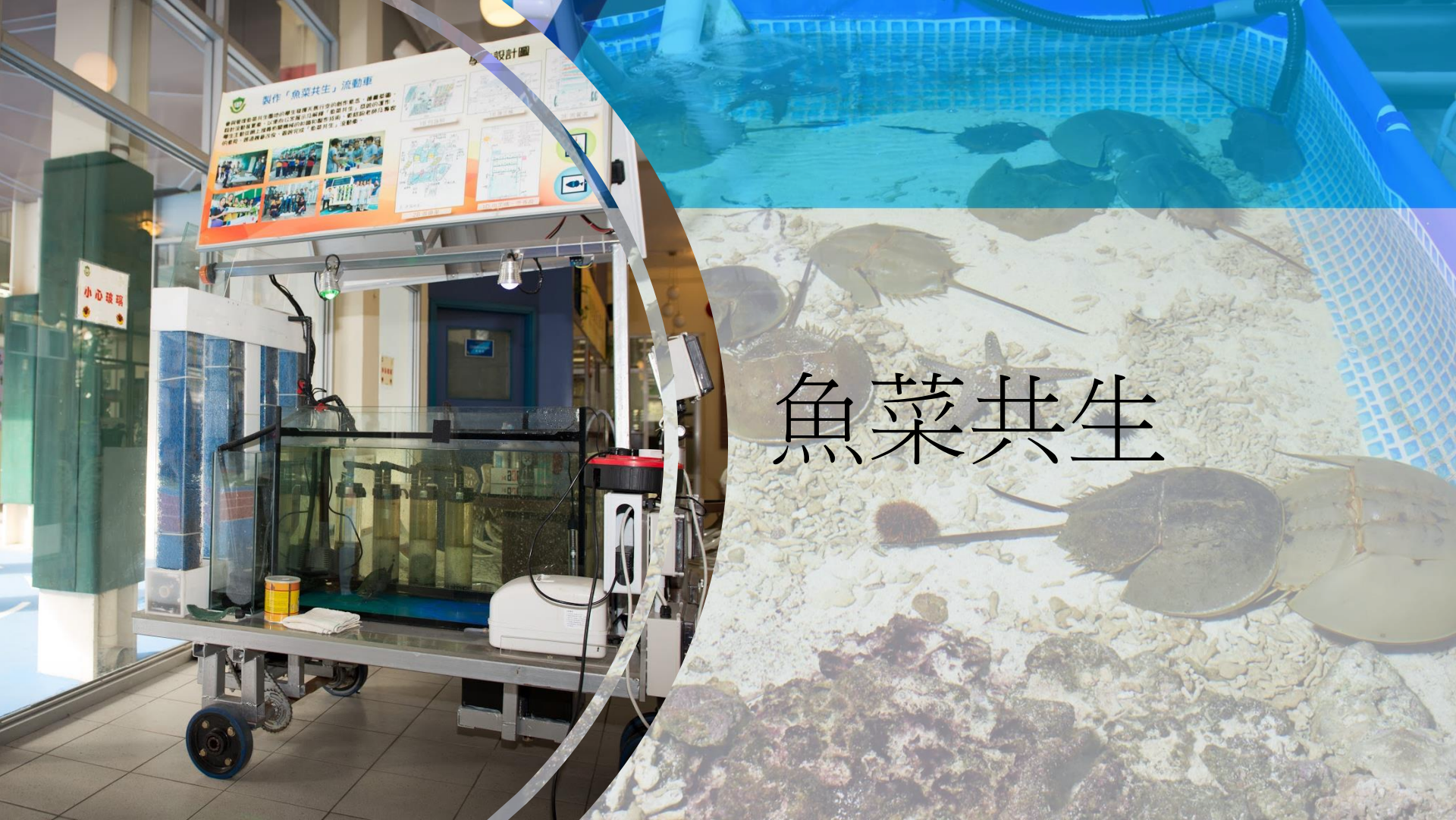
科技教育基建與課程

- 魚菜共生
- 珊瑚館
- STEM LAB (Coding/ Making/ Design)
- AI Education LAB
- IoT 智能草地



魚菜共生





製作「魚菜共生」流動車

本館與國立海洋科技博物館合作，由國立海洋科技博物館提供技術支援，由本館負責設計與製作。本館將與國立海洋科技博物館合作，由國立海洋科技博物館提供技術支援，由本館負責設計與製作。本館將與國立海洋科技博物館合作，由國立海洋科技博物館提供技術支援，由本館負責設計與製作。

魚菜共生

小心玻璃



English Aquacafé

珊瑚館







STEM LAB (MAKING)



STEM LAB (CODING)

STEM LAB (Design & Coop)



AI Education LAB

梁紹安伉儷人工智能教學中心 技術支援 商湯科技



人工智能 (AI) 乃科技教育發展的大趨勢，本校承蒙九龍樂善堂前主席兼本校前校監梁紹安先生MH及夫人梁潘詠賢女士慷慨捐助，成立「人工智能教學中心」，作育菁莪，讓「余中」的創新科技教育跨步邁進新領域。同時，鳴謝商湯科技為本中心提供技術支援，推動本校在人工智能技術的發展。

AI Education LAB





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IoT 智能草地



SKILLS STUDENTS WILL ALWAYS NEED



**Curiosity &
Imagination**



**Initiative &
Entrepreneurship**



**Agility &
Adaptability**



**Critical Thinking &
Problem Solving**



**Effective Oral
& Written
Communication**



**Collaboration Across
Networks & Leading
by Influence**



**Accessing &
Analyzing
Information**

7 Skills Students Will Always Need



Skill #1: Critical Thinking and Problem Solving

Skill #2: Collaboration Across Networks and Leading by Influence

Skill #3: Agility and Adaptability

Skill #4: Initiative and Entrepreneurship

Skill #5: Effective Oral and Written Communication

Skill #6: Accessing and Analyzing Information

Skill #7: Curiosity and Imagination





Jockey Club Multiple Pathways Initiative

CLAP>TECH Pathway

Jockey Club Multiple Pathways Initiative

CLAP>TECH Pathway

FUNDED BY



香港賽馬會慈善信託基金

The Hong Kong Jockey Club Charities Trust

同心同步同進 RIDING HIGH TOGETHER

POWERED BY:



賽馬會
鼓掌·創你程計劃
CLAP for Youth@JC
Career & Life Adventure Planning

P-TECH™

UNIVERSITY PARTNER:



香港浸會大學

HONG KONG BAPTIST UNIVERSITY

SECONDARY SCHOOL PARTNERS:



SUPPORTING ORGANISATIONS:



教育局

Education Bureau



HONG KONG
COMPUTER
SOCIETY
IT Shapes The Future

Five secondary school partners:

- Delia Memorial School (Hip Wo)
- Lok Sin Tong Yu Kan Hing Secondary School
- Hong Kong Red Swastika Society Tai Po Secondary School
- Shun Tak Fraternal Association Yung Yau College
- Pak Kau College

University partner:

- Hong Kong Baptist University

Industry partners:

- HSBC
- IBM
- Towngas

Jockey Club Multiple Pathways Initiative

CLAP>TECH Pathway



Jockey Club Multiple Pathways Initiative

CLAP>TECH Pathway



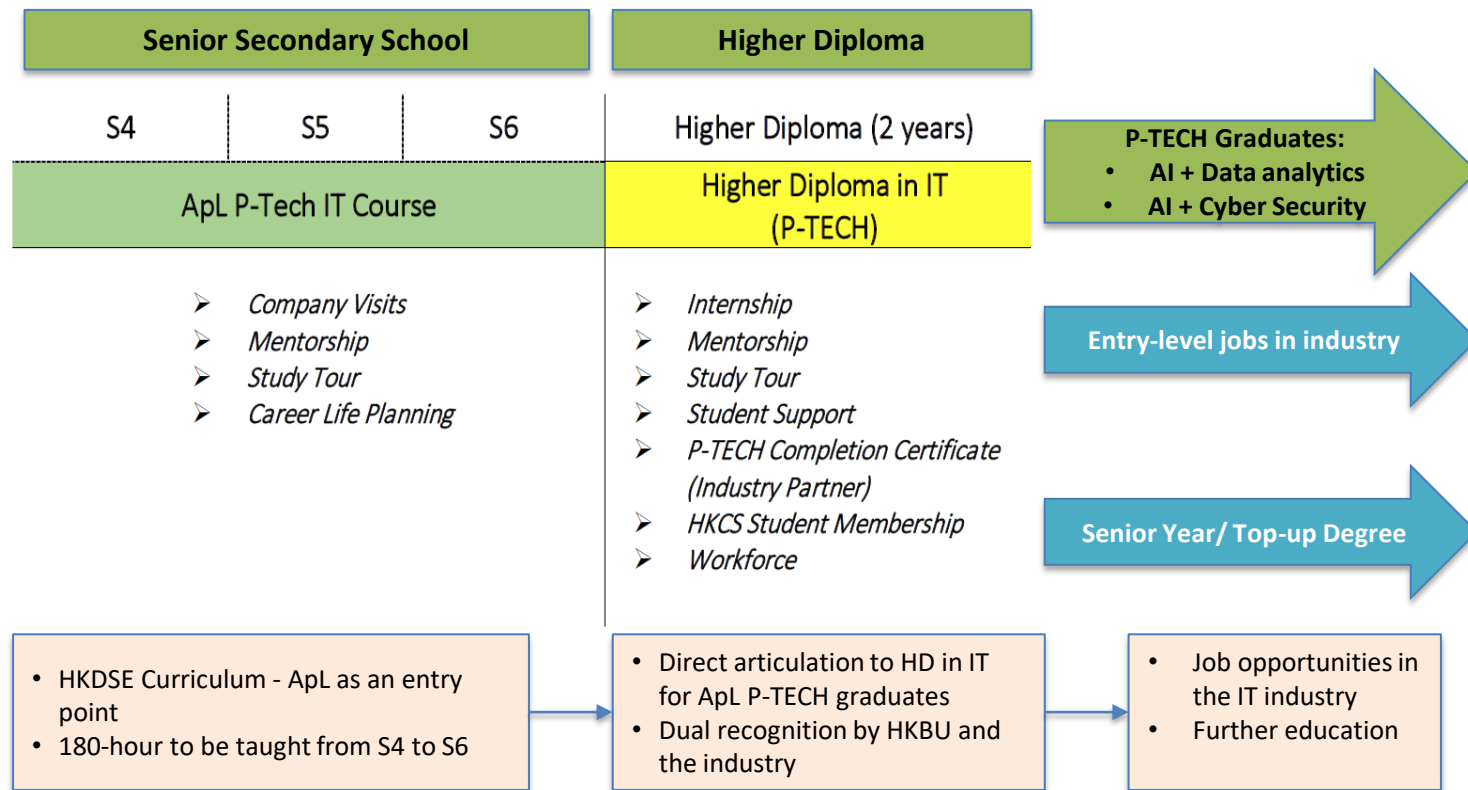
Industry
Partners

Secondary
Schools

University



A five-year pathway adapted with the P-TECH model in the local cultural and educational context



21

Curriculum for the CLAPTECH ApL course

Module 1 Fundamentals of Information Technology (IT) (30 hours)



- Introduction to Emerging Technology (Data Analytics, Cybersecurity and Artificial Intelligence)
- Computer Hardware Components and Architectures
- Concepts of Software and Applications
- Computer Ethics and Social Issues
- Basic IT Security & Threats

Module 2 Programming (39 hours)



- Data Structures and Basic Algorithm Design
- Introduction of Programming Languages (Python)
- Introduction to Data Science Programming

Module 3 Database (24 hours)



- Data Processing with Spreadsheet Software (Excel)
- Data Processing with Relational Database Management System (RDBMS)

Module 4 Workplace Essentials Skills (24 hours)



- Presentation
- Collaboration
- Analytical Thinking
- Curiosity & Motivation
- Self-Management
- Project Management
- Leadership
- Problem Solving
- Effective Communication

Module 5 Application Development (39 hours)



- Object Oriented Programming (JavaScript)
- Fundamentals of Web Development using "HTML5"
- Fundamentals of Mobile App Development using "Swift"

Module 6 Data Communications and Networking (24 hours)



- Network Fundamentals
- Switching and Routing Technology
- Infrastructure Services, Security and Management

Industrial Activities (10 hours – OLE)



- Company Visits (IBM)
- Mentorship (IBM)

Skill-focused assessment of the ApL course

Task No.	Task Name	Assessment Method	Brief Task Description	Assessment/ Submission Date	Contribution to Final Score (%)
1	Test on Concept	Written Test	Students are required to complete a written test on basic concepts of emerging technology	April Year 1	15
2	Programme	Practical Assessment	Students are required to complete a programming assignment	July Year 1	20
3	Data Analysis	Written Group Report	Students in groups are required to analyze the data from different sources and come up with useful results	December Year 1	15
4	Career Report	Written Report	Students are required to write a report about their learning and work place experiences as well as plan their IT career path in future	December Year 2	10
5	Web/Mobile Programming	Group Prototype Making	Task 1 Students are required to complete a programming assignment using web or mobile product development techniques as per instructions Task 2 Students in groups are required to present an idea for a practical application. The idea should be presented in a web or mobile application. A group presentation to introduce the application is required	July Year 2	25
6	Cyber Security Issue	Group Presentation	Students in groups are required to identify and describe the cybersecurity threats/issues for an emerging technology	December Year 2	15

Curriculum of the Higher Diploma Programme

Generic Skills Courses (18 units)	
Effective English Communication in Technology	Discrete Mathematics
Effective Chinese Communication in Technology	Basic Applied Statistics and Probabilities
Basic Linear and Matrix Algebra	Design Thinking
Discipline Required Courses	
Java Programming	Design and Analysis of Algorithms
Introduction to Operating Systems	Introduction to Database Systems
System Design and Analysis	Fundamentals of Artificial Intelligence
Object-oriented Programming and Data Structures	Data Mining
Cloud Services and Architectures	Internships
Specialization Courses –Artificial Intelligence	
Programming Technologies and Tools	Machine Learning Algorithms and Application
Introduction to Natural Language Processing	Internet Applications and Development (Web Services and API)
Specialization Courses – Data Analytics or Cybersecurity	
To be confirmed	



賽馬會 Jockey Club
Community Care and
STEM in Action Project
.....
社區關懷與創意教育實踐計劃

Key Organizers:



The Chinese University of Hong Kong
香港中文大學



- Centre for Learning Sciences and Technologies (CLST)
學習科學與科技中心
- Hong Kong Institute of Educational Research (HKIER)
香港教育研究所



Lok Sin Tong Yu Kan Hing Secondary School
樂善堂余近卿中學

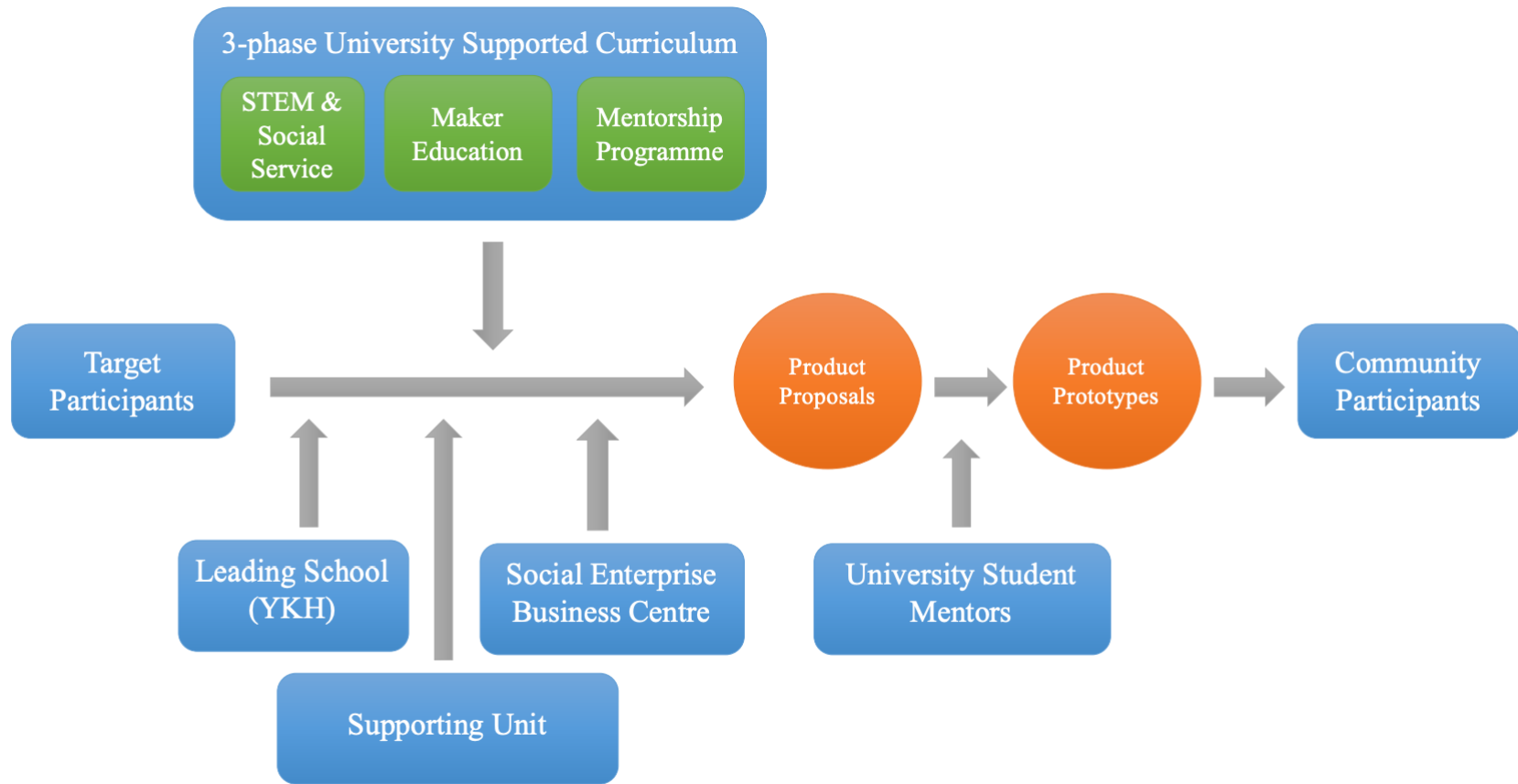
【特寫】余中生發明智能煮食 幫「老友」避祝融

2017-10-03



https://www.youtube.com/watch?v=ukV_uM3ikJ4





3-Phase Curriculum

Project design of the STEM in Action Project: Phases I, II & III

Phase	Curriculum	No. of Hours	Total no. of Hours	Estimated No. of Weeks
I	Module 1: STEM Education	10	22	7
	Module 2: Social Service Education	9		5
	Module 3: Proposal for STEM in Action	3		2
II	Maker Education	20	20	4
III	Mentorship Programme	64	64	8
Total			106	20



3-Phase Curriculum – Phase I

Module 1: STEM Education

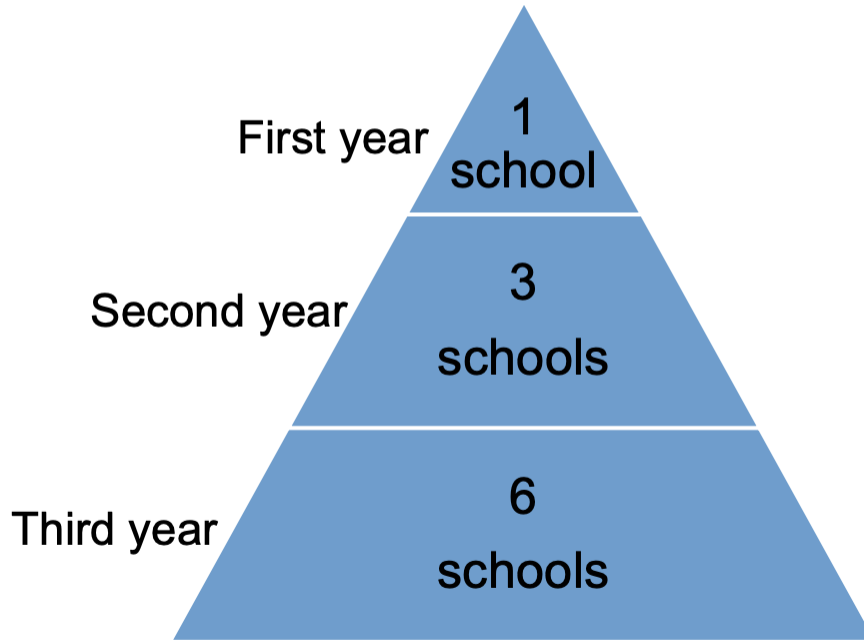
Code	Content Topics	No. of Hours
STEM01	Basic Coding Skill for Computational Thinking	1.5
STEM02	Basic IoT Concept and Application (I)	1.5
STEM03	Basic IoT Concept and Application (II)	1.5
STEM04	IFTTT and Smart Home Device	1.5
STEM05	Project-based Learning: Maker Education	1.5
STEM06	Mini Project on STEM Education	2.5
Total		10

3-Phase Curriculum – Phase I

Module 2: Social Service Education

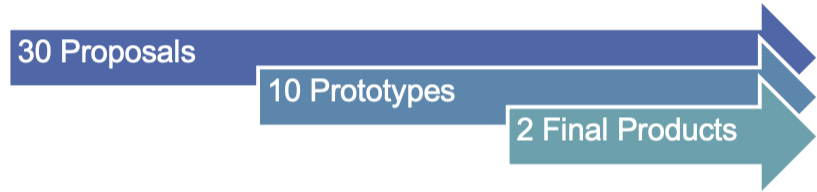
Code	Content Topics	No. of Hours
SSED01	Basic Understanding for Social Services	1.5
SSED02	Field Visit and Interview: Non-profit Organization	2.5
SSED03	Basic Concept and Skill for Developing Product for Target Group (I)	1.5
SSED04	Field Visit: Social Services	2.0
SSED05	Basic Concept and Skill for Developing Product for Target Group (II)	1.5
Total		9

No. of Project Schools



No. of Students' Output

- Each school per year



- Total students' output after 3 years
 - Proposals: 300
 - Prototypes: 100
 - Final Products: 20

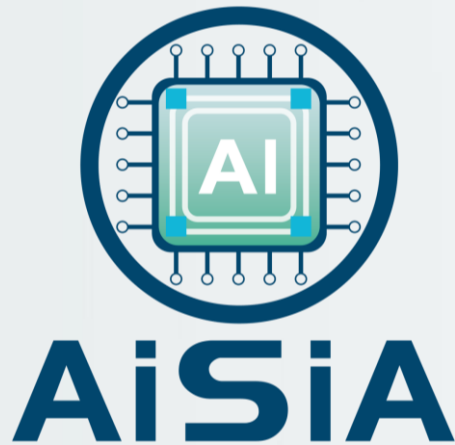






人工智能 AI 及社會智慧 SI 結合 有效推展人工智能教育的學與教策略





Artificial Intelligence & Social Intelligence Alliance
人工智能及社會智慧聯盟



AISIA 聯盟構成



微軟及商湯科技
提供人工智能課程內容
引入業界最新及頂尖
的人工智能技術於ST
EM較育，讓學生與
世界接軌



耀華文化

耀華文化慈善基金會
計劃協調及統籌
統籌、資金募集、結
合社會智慧內容



**香港城市大學電子工程
學系 CityU Apps Lab**
項目監察及未來涵接

監察及作為項目顧問
，未來為同學提供精
英培訓的機會



本地中學
普及項目

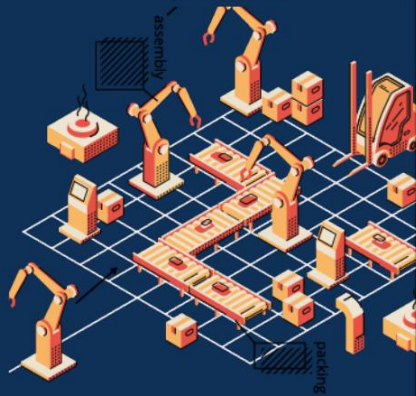
讓學生及老師參與項
目，提升本地學界有
關教育進程，接軌未
來



AI Education – AI Ethic



The 7 Most Pressing Ethical Issues in Artificial Intelligence



Premier Reference Source

Responsible AI and Ethical Issues for Businesses and Governments



Walter Dierker and Mark Ziefel

Palgrave Macmillan

From STEM to AIEd



Recipe

if this then that

Trigger

Action



耀華慈善基金會 同時作為津助顧問

1. 全方位學習津貼：由於疫情，中學大量全方位學習項目取消，有關資源可調撥作為啟動資金/作為以後恆常化的資源
2. OGCIO 中學IT實驗室計劃：3年共100萬，發展IT相關課外學習，可作為啟動資金/首3年的資源
3. 慈善基金：耀華文化等多個慈善基金，支援計劃翌年、第三年，學校因資源不足之有關開支



樂善堂余近卿中學

由耀華文化慈善基
金統籌、募集資金、
設計全港首個中學
AI LAB



https://www.ogcio.gov.hk/tc/news/speeches/2019/11/sp_20191129.html

天主教慈幼會伍少梅中學

由耀華文化慈善基金作為協辦
及課程設計和供應單位

圖為伍少梅中學人工智能教育
中心預想圖，將於本年4月落
成及開始使用



YMCA港青基信書院

獲身兼香港直資學校議會主席的陳狄安校長支持計劃，除了參與課程以外，同時提升學校人工智能硬件設備

協助申請OGCIO以支援：

1. 課程開支
2. 人工智能實驗室套件
3. 添置電腦



AI SI 課程大綱

Modules	AI Modules	SenseTime		Microsoft		CDCCHK		CityU
1	Introduction of AI	SenseStudy	Y	Azure	Y			Monitor and Assist
2	Machine Learning			Azure	Y			Monitor and Assist
3	IOT & IFTTT	SenseStudy	Y					Monitor and Assist
4	Basic Programming	SenseStudy	Y					Monitor and Assist
5	Computer Vision/ Image Prosscening	SenseStorm	Y	Azure	Y			Monitor and Assist
6	Natural Language Processing			Azure	Y			Monitor and Assist
7	Conversational AI			Azure	Y			Monitor and Assist
8	Basci Big Data Analysis	SenseStudy	Y					Monitor and Assist
9	SI Introduction and Communication					CDCC	Y	Monitor and Assist
10	Social Impact Evaluation					CDCC	Y	Monitor and Assist
Each module is made of 2 teaching sessions (40mins / session)								



<https://www.hk01.com/18%E5%8D%80%E6%96%B0%E8%81%9E/528070/a-i-%E5%92%96%E5%95%A1%E7%99%BB%E6%B8%AF-%E6%8C%89%E6%99%82%E9%96%93-%E6%B0%A3%E6%BA%AB%E5%8F%8A%E6%96%B0%E8%81%9E-%E4%BA%BA%E5%B7%A5%E6%99%BA%E8%83%BD%E8%AA%BF%E9%85%8D%E7%8D%A8%E7%89%B9%E5%8F%A3%E5%91%B3>



全港初中生成用大數據 創首杯人工智能咖啡



用熱門新聞、實時氣溫沖泡好風味

英皇書院同學會小學設計智能購物車 以人工智能助長者找貨物位置

<https://www.hk01.com/%E7%A4%BE%E6%9C%83%E6%96%B0%E8%81%9E/541715/%E8%8B%B1%E7%9A%87%E6%9B%B8%E9%99%A2%E5%90%8C%E5%AD%B8%E6%9C%83%E5%B0%8F%E5%AD%B8%E8%A8%AD%E8%A8%88%E6%99%BA%E8%83%BD%E8%B3%BC%E7%89%A9%E8%BB%8A-%E4%BB%A5%E4%BA%BA%E5%B7%A5%E6%99%BA%E8%83%BD%E5%8A%A9%E9%95%B7%E8%80%85%E6%89%BE%E8%B2%A8%E7%89%A9%E4%BD%8D%E7%BD%AE>



中學生智能創意比賽 隨機認便廁所系統得獎

https://hk.on.cc/hk/bkn/cnt/news/20201128/bkn-20201128120818757-1128_00822_001.html



樂善堂余近卿中學師兄弟 優化得獎「智能分類回收箱」

<https://www1.hkej.com/dailynews/culture/article/2182330/樂善堂余近卿中學師兄弟++優化得獎「智能分類回收箱」>



信報 財經新聞

學生認證 生涯規劃



CERTIFICATE *Of Completion*

This certificate is hereby bestowed upon

Name Surname

For the successful completion of 10 hours of AI & SI Training
from 20/11/2020 to 21/11/2020

Certified By:



AiSiA Alliance

Supported By:



CITYU APPS LAB



耀華文化慈善基金

SI (Social Intelligence + School Identity)



**樂齡科技
博覽暨高峰會**
Gerontech and Innovation
Expo cum Summit

2020.11.19-22

香港會議展覽中心
展覽廳 1A-C
Hall 1A-C
Hong Kong Convention
& Exhibition Centre

博覽無需登記免費入場
Free Admission for Expo



Citi Foundation



考察安排

Field Trips	
AI	Sensetime in Science Park
AI	Microsoft in Cyberport
SI	Smart Home for The Elderly in Shatin
SI	Mental Health Centre of New Life

AI visit:

1. Microsoft AI Showroom 數碼港

展示人工智能於銷售、住屋及健康方面的應用

2. SenseTime AI+ Application Showroom 科學園總部

展示人工智能於教育、交通及移動技術方面的應用

SI visit:

1. 賽馬會A家

推廣及介紹樂齡科技如何作為在地老化的解決方案

2. 安泰軒 (新生會)

展示不同方法發現精神健康問題

