



**Infocomm
Media Club**

**LEARN
ROADMAP
2023**

Information Kit

INTRODUCTION

The Infocomm Media Development and Authority (IMDA) aims to collaborate with teachers-in-charge of Infocomm Media Clubs to provide an enriching CCA experience for Infocomm Media Club members. This includes providing members with ample opportunities to pursue their interest, deepen their learning in emerging tech and gain industry exposure.

Since the start of 2022, IMDA has been providing specially curated programmes and activities in 5 Pillars to enable Infocomm Media Club members to receive a well-rounded CCA experience:

- LEARN
- DISCOVER
- SERVE
- LEAD
- EXCEL

To find out more details, visit

<https://codesg.imda.gov.sg/infocomm-media-clubs>



LEARN

BROAD-BASED TRAINING AND DEEP SKILLS ACQUISITION

As part of IMDA's LEARN menu, Infocomm Media Club members will be provided training in various Infocomm and Media domains such as Artificial Intelligence, Game Development and Mobile App Development. The intent is to spark passion for tech skill acquisition and apply it through hands-on projects.

LEARN covers two training modes:

- **LEARN Roadmap courses**

These broad-based courses are held during CCA hours at the school's premises. Teachers-in-charge will choose the courses suitable for their Clubs and apply to IMDA. This Info Kit will cover the application process and the course offerings for LEARN Roadmap in 2023.

- **LEARN Bootcamps & Accelerators**

These fast-tracked learning courses are held outside of school curriculum hours, at external premises. Infocomm Media Clubs members can apply to training vendors directly for upcoming bootcamps or accelerators. To find out more details, visit <https://codesg.imda.gov.sg/infocomm-media-clubs/learn>

LEARN Roadmap Courses 2023 (Primary & Secondary/JC)

Choose courses from 10 Tech and Media Domains



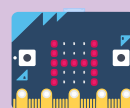
Artificial
Intelligence



Cybersecurity



Data
Analytics



Digital
Making



Game
Development



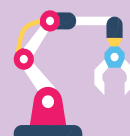
Immersive
Media



Internet of
Things



Mobile App
Development



Robotics



Social
Robotics

POINTS TO NOTE:

- IMDA supports each MOE school for up to 2 courses per year. A school requiring more course support can write to imda_codesg@imda.gov.sg.
- For selected courses, Secondary Schools/JCs can choose a complementary 12-hour add-on module to expand members' learning in additional tech domains.
- Each class must have a minimum class size of 10 students. Schools should consider the stand-down of students from CCAs when drawing up the lesson schedule, to meet the minimum class size.
- The training cost will be fully funded by IMDA. Where there is hardware required for the training, schools can work with the training providers or other vendors to procure the hardware at their own expense.

APPLICATION PROCESS:

1

School to contact preferred training provider on their selected course* and understand details.

2

Work out a lesson schedule stating dates and times, with training provider for the selected course. The schedule needs to be signed by both parties.

3

Fill up Application Form.
(by HOD or Teacher-in-Charge)

Required Information:

- Course Code
- Training Provider
- School Name and CCA Name
- Level of Students and Class Size[#]
- Lesson Schedule (signed)
- Contact Details of School Leader and Teacher-in-Charge

5

Approval.
School to record attendance for training provider to submit to IMDA.

4

IMDA will review the application and send queries if any.

Links to Application Form:

- [Primary School](#)
- [Secondary School/JC](#)

[#]Each class must have a minimum class size of 10 students.

^{*}Where hardware is required, schools should work with the training provider or other vendors to purchase hardware at their own expense.

LIST OF COURSES FOR INFOCOMM MEDIA CLUBS

PRIMARY SCHOOL

[Artificial Intelligence \(A.I.\)](#)

[Cybersecurity](#)

[Digital Making](#)

[Game Development](#)

[Immersive Media](#)

[Mobile App Development](#)

[Robotics](#)

[Social Robotics](#)

SECONDARY SCHOOL/JC

[Artificial Intelligence \(A.I.\)](#)

[Cybersecurity](#)

[Data Analytics](#)

[Game Development](#)

[Immersive Media](#)

[Internet of Things \(IoT\)](#)

[Mobile App Development](#)

[Robotics](#)

PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ARTIFICIAL INTELLIGENCE (1/2)	<p>OVERVIEW OF MODULE</p> <p>Students will gain an understanding of Machine Learning and AI concepts and work on applying these concepts through a project. Ethical and privacy issues relating to AI will also be discussed.</p> <p>The project work will include a simple machine learning model and computer vision.</p>	24 hours	<p>EP Education Pte Ltd</p> <p>Course Ref: AI-EP-POF</p>	<p>HARDWARE: N.A.</p> <p>SOFTWARE: Mblock 5 (web version available)</p>	<p>To demonstrate their understanding of machine learning output accuracy which is measured based on confidence level by their AI system, students will apply and articulate the use of AI in a facial recognition system. They will be tasked with adding in facial profiles for machine learning, creating a database of student facial samples which lets the AI system utilise confidence level to compare against live detection.</p>	<p>Koh Choon Chuan ✉ cckoh@epasia.cc ☎ 9146 6015</p> <p>Pee Hai Rou ✉ hairou@epasia.cc ☎ 9853 8811</p>



PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ARTIFICIAL INTELLIGENCE (2/2)	<p>OVERVIEW OF MODULE</p> <p>Students will gain an understanding of Machine Learning and AI concepts and work on applying these concepts through a project. Ethical and privacy issues relating to AI will also be discussed.</p> <p>The project work will include a simple machine learning model and computer vision.</p>	24 hours	<p>Stag Match Private Limited</p> <p>Course Ref: AI-SM-POF</p>	<p>HARDWARE: N.A.</p> <p>SOFTWARE: Pictoblox</p>	<p>Students will use the AI blocks in PictoBlox to learn AI and make various types of AI-based projects and prototypes to solve real-world problems. Through these projects, they will learn the following:</p> <p>1. Artificial intelligence concepts:</p> <ul style="list-style-type: none">a) Computer Vision;b) Face Detection;c) Optical Character Recognition; andd) Speech Recognition <p>2. Machine Learning:</p> <ul style="list-style-type: none">a) Image-Based Machine Learning Models;b) Pose-Based Machine Learning Models; andc) Audio-Based Machine Learning Models	<p>Nazreen MY ✉ nazreen@smet.edu.sg</p> <p>Thomas Yeo ✉ thomas.yeo@smet.edu.sg</p> <p>✉ info@stagmatch.com.sg ☎ 6612 7165</p>

PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
CYBERSECURITY	<div><div>OVERVIEW OF MODULE</div><p>Students will gain an understanding of concepts such as Encryption and Cyber-casing. Implications of cyberattacks and personal cybersecurity risks will also be discussed.</p><p>The project work will allow students to deep dive into one encryption algorithm and work on understanding and using this algorithm.</p></div>	24 hours	<div>ACP Computer Training School</div> <div>Course Ref: CS-ACP-POF</div>	<div>HARDWARE: PC/Laptop with MS Windows (Win 7 or above), Mac with macOS (10.8 or higher). Core i5-2400 with 4GB RAM or better.</div> <div>SOFTWARE: Web-based software.</div>	<div>Students will be given the following scenario:</div> <div>Joe is going to invite his friends to a surprise party to his house. As it is a surprise, no details are given to his friends in advance! His friends are to decipher the codes to seek out details of the party:</div> <div>1) the time; 2) the location; 3) the food; and 4) the games</div>	<div>Poon Kum Seng</div> <div> kum_seng@acpcomputer.edu.sg</div> <div> 8102 2256</div>

PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	
DIGITAL MAKING – OFFERED IN COLLABORATION WITH MICROSOFT	<p>The Microsoft Digital Making Roadmap will help students gain an understanding of how to use the Microsoft Makecode block-based coding platform, Micro:bit, different sensors/ actuators to code and create different smart gadgets/ prototypes to solve real world problems. Through the application of computational thinking and design thinking constructs, students will learn how to problem solve and use upcycled materials such as cardboard, infused with technology, to create useful artefacts.</p> <p>The course aims to enable students to:</p> <ul style="list-style-type: none">i. Understand what computational thinking is and use different sensors and actuators to create a prototype to solve real world problemsii. Understand what digital making and coding are, how to use micro:bit and Makecode platformiii. Realise that coding and making are fun and manageableiv. Code and create useful prototypes using upcycled materials and technology	16 hours	<p>Zenitant</p> <p>Course Ref: MICROSOFT-DIGIMAKE</p>	<p>HARDWARE :</p> <ul style="list-style-type: none">• BBC Micro:bit with USB Cable (capable of both power and data transfer)• Battery pack (for untethered/mobile use)• PC/Laptop with a USB port or mobile device with Bluetooth connectivity <p>SOFTWARE :</p> <ul style="list-style-type: none">• Microsoft MakeCode	
				PROJECT WORK	CONTACT PERSON
				Students will be creating different cardboard Micro:bit prototypes based on problem statements posed. Prototypes that students may come up with will include smart lamps, smart burglar alarm systems, smart fitness trackers and cardboard robots to solve the problem posed.	<p>Mr Philip Kong</p> <p>✉ philipkong@zenitant.com.sg</p> <p>☎ 9744 0711</p> <p>Mr Muhd Nizam</p> <p>✉ nizam@zenitant.com.sg</p> <p>☎ 9129 0362</p>



PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	
GAME DEVELOPMENT - OFFERED IN COLLABORATION WITH MICROSOFT (1/3)	<p>The Microsoft Game Development Roadmap will help students gain an understanding of what game development is, different types of digital games and how to use MS Minecraft Education and MS Makecode Arcade to code and create those games.</p> <p>For the 8-hour Minecraft Education segment, students will learn Minecraft design principles and how to code/ create an open-world Minecraft game with game characters, NPCs that they can play individually or collaboratively. For the 8-hour Makecode Arcade segment, students will learn different game mechanics, how to create their own sprites and 2D retro-arcade games such as Space Invaders and Flappy Bird.</p> <p>The course aims to enable students to:</p> <ol style="list-style-type: none">Understand what computational thinking is, different genre of games and how to create different games for different audiences/purposes.Understand game creation strategies and how to use Minecraft Education and Makecode Arcade platforms to create games.Learn different coding constructs relating to game creationRealise that coding and game development are fun and manageable	16 hours	Zenitant Course Ref: MICROSOFT-GAMEDEV	<p>HARDWARE :</p> <ul style="list-style-type: none">PC/Laptop with a Windows 7 or later, Intel Core i3-3210 3.2 GHz / AMD A8-7600 APU 3.1 GHz or equivalent with 2GB RAM <p>SOFTWARE :</p> <ul style="list-style-type: none">Microsoft Minecraft EducationMicrosoft MakeCode Arcade	
				PROJECT WORK	CONTACT PERSON
				<p>Students will be creating games using Minecraft Education and Makecode Arcade.</p> <p>With Minecraft Education:</p> <ul style="list-style-type: none">Open-world resource collection Minecraft game to build sustainable towns/ citiesCastle/ Zombie Defense Minecraft Game <p>With Makecode Arcade:</p> <ul style="list-style-type: none">2D Shooter games like Space Invaders2D Platformer Games like Flappy Bird	<p>Mr Philip Kong</p> <p>✉ philipkong@zenitant.com.sg</p> <p>☎ 9744 0711</p> <p>Mr Muhd Nizam</p> <p>✉ nizam@zenitant.com.sg</p> <p>☎ 9129 0362</p>

PRIMARY

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<div>GAME DEVELOPMENT (2/3)</div>	<div>OVERVIEW OF MODULE Students will gain an understanding of concepts such as game mechanics, visual and audio elements which will be applied through a project. The project work involves working on a game environment for a concurrent multi-player mode game.</div>	24 hours	<div>Roboto LLP Course Ref: GD-ROB-POF</div>	<div>HARDWARE: N.A. SOFTWARE: Scratch 3.0</div>	<div>Students will develop their own projects using Scratch 3.0 platform. To encourage students to exchange their thoughts of game development, and gain insights from others, the project work will include: 1. Presentation & Pitching: Students will present on their Scratch project with the aid of Pitch playbook. 2. Assessment: Students' project will be graded using defined assessment rubrics and they will figure out self-learning after the course.</div>	<div>Brian Lee  brianlee@roboto.sg  9767 8052</div>

PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
GAME DEVELOPMENT (3/3)	<p>OVERVIEW OF MODULE</p> <p>Students will gain an understanding of concepts such as game mechanics, visual and audio elements which will be applied through a project.</p> <p>The project work involves working on a game environment for a concurrent multi-player mode game.</p>	24 hours	<p>Duck Learning</p> <p>Course Ref: GD-DL-POF</p>	<p>HARDWARE: N.A.</p> <p>SOFTWARE: Scratch 3.0</p>	<p>Students will create design and create their own game taking into consideration game mechanics that will keep the game interesting for the player. They will:</p> <ol style="list-style-type: none">1. Include a concurrent multi-player mode for at least 2 players2. Include score-keeping3. Include a game environment4. Include audio e.g. background music, sound effects5. Include at least 1 playable character and 1 non-playable character <p>Students will document their process.</p>	<p>Murtaza Njmudden</p> <p>✉ murtaza@ducklearning.com</p> <p>☎ 9752 5201</p>



PRIMARY

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DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	
IMMERSIVE MEDIA - OFFERED IN COLLABORATION WITH APPLE INC	<p>The Apple New Media Junior Programme provides students with an overview of how to use iPads to spark their creativity and bring their ideas into reality.</p> <p>By the end of the course, the students should be able to:</p> <ul style="list-style-type: none">i. Know the fundamentals of mobile photographyii. Create videos and practise the videography process<ul style="list-style-type: none">• Pre-production process• Shooting• Post-productioniii. Know the fundamentals of digital drawing and learn how to manage a digital canvasiv. Know how to create podcasts to share ideasv. Learn about Augmented Reality and create AR video content	24 hours	<p>Make The Change</p> <p>Course Ref: APPLE-NEWMEDIAJR</p>	<p>HARDWARE : iPads with iOS (15 or newer)</p> <p>SOFTWARE : Clips, Garageband, AR Makr, Jigspace, Camera, Keynote, Pages</p> <p>Training provider will work with schools to ensure all necessary apps are pre-installed on the iPads prior to training.</p>	
				PROJECT WORK	CONTACT PERSON
				Students will build a digital portfolio that can be showcased at the end of the course in a digital exhibition.	Mr Pedro Agurre ✉ pedro@makethechange.sg

PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
<div>MOBILE APP DEVELOPMENT</div> <div>(1/2)</div>	<div>OVERVIEW OF MODULE</div> <p>Students will gain an understanding of concepts such as UI/UX, functional flow and the use of a database in a mobile app. The future of mobile apps and privacy issues will also be discussed.</p> <p>The project work requires students to build a mobile app.</p>	<div>24 hours</div>	<div>Roboto LLP</div> <div>Course Ref: MD-ROB-POF</div>	<div>HARDWARE:</div> <p>PC/Laptop with MS Windows (Win 7 or above), Mac with macOS (10.8 or higher). Core i5-2400 with 4GB RAM or better.</p> <div>SOFTWARE:</div> <p>Thunkable Live</p>	<p>The theme of the project will be mainly focused on COVID-19. Students will develop their own mobile apps under this theme. Students will start the project by planning and developing the idea of the app through a storyboard, and live testing the app using an emulator on a smartphone or tablet screen.</p>	<div>Brian Lee</div> <div> brianlee@roboto.sg</div> <div> 9767 8052</div>



PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
MOBILE APP DEVELOPMENT (2/2)	<p>OVERVIEW OF MODULE</p> <p>Students will gain an understanding of concepts such as UI/UX, functional flow and the use of a database in a mobile app. The future of mobile apps and privacy issues will also be discussed.</p> <p>The project work requires students to build a mobile app.</p>	24 hours	ACP Computer Training School Course Ref: MD-ACP-POF	<p>HARDWARE: N.A.</p> <p>SOFTWARE: Web-based software.</p>	<p>Students will be creating their own movie app that they can download to their smartphone.</p> <p>Students will be applying what they have learnt in the course to do the project. They will plan the flow & user interface of the app using the storyboard and database requirement before developing the app. Finally, they will be testing the functionalities and UI of the app.</p>	<p>Poon Kum Seng</p> <p>✉ kum_seng@acpcomputer.edu.sg</p> <p>☎ 8102 2256</p>



PRIMARY

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DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
<div>ROBOTICS</div> <div>(1/3)</div>	<div>OVERVIEW OF MODULE</div> <p>Students will gain an understanding of simple circuits and coding concepts such as functions and event-based triggers. Commercial uses of robots will also be discussed.</p> <p>The project work will require students to build a robot with a microcontroller and sensors.</p>	<div>24 hours</div>	<div>Roboto LLP</div> <div>Course Ref: RB-ROB-POF</div>	<div>HARDWARE:</div> MakeBlock mBot (Bluetooth version) + Servo Pack Expansion Pack <div>SOFTWARE:</div> mBlock 5.3.0	<p>Students’ learning will be assessed in 2 parts: theory and practical. For theory-based, students will be tested with a MCA quiz and open-ended questions based on their knowledge of robotics, mBot and mBlock code.</p> <p>For practical assessment, students are required to build and customize their personal mBot to solve a course and present their solution to their classmates.</p>	<div>Brian Lee</div> <div> brianlee@roboto.sg</div> <div> 9767 8052</div>

PRIMARY

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DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
<div>ROBOTICS</div> <div>(2/3)</div>	<div>OVERVIEW OF MODULE</div> <p>Students will gain an understanding of simple circuits and coding concepts such as functions and event-based triggers. Commercial uses of robots will also be discussed.</p> <p>The project work will require students to build a robot with a microcontroller and sensors.</p>	<div>24 hours</div>	<div>Duck Learning</div> <div>Course Ref: RB-DL-POF1</div>	<div>HARDWARE:</div> <div>Lego SPIKE PRIME</div> <div>SOFTWARE:</div> <div>SPIKE PRIME App</div>	<div>Project theme: Care for my Community</div> <div>Students will be guided to:</div> <div>1. Refine their solutions within the Empathise, Design and Ideate phases.</div> <div>2. Identify what they require to complete the project task.</div> <div>3. Build the project</div> <div>4. Present their project.</div> <div>Trainers will roam around to assist groups in creating a sound build and efficient program.</div>	<div>Murtaza Njmudden</div> <div> murtaza@ducklearning.com</div> <div> 9752 5201</div>

PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ROBOTICS (3/3)	<p>OVERVIEW OF MODULE</p> <p>Students will gain an understanding of simple circuits and coding concepts such as functions and event-based triggers. Commercial uses of robots will also be discussed.</p> <p>The project work will require students to build a robot with a microcontroller and sensors.</p>	24 hours	<p>Duck Learning</p> <p>Course Ref: RB-DL-POF2</p>	<p>HARDWARE :</p> <p>Micro:bits</p> <p>Strawbees Robotics</p> <p>Invention for Micro:bit</p> <p>SOFTWARE :</p> <p>Makecode</p>	<p>Students will design and create their own motorized model.</p> <p>Theme: Smart Home/School/ Community</p> <p>Their models should:</p> <ol style="list-style-type: none">1. Be motorized2. Include at least 1 movable joint (output)3. Include at least 1 type of sensor (input) <p>Students will document their process and present their projects to their peers.</p>	<p>Murtaza Njmudden</p> <p>✉ murtaza@ducklearning.com</p> <p>☎ 9752 5201</p>

PRIMARY

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	
SOCIAL ROBOTICS - OFFERED IN COLLABORATION WITH SOFTBANK	<p>The SoftBank Social Robotics Roadmap will expose students to artificial intelligence (AI) concepts in social robots. The course is catered for the young audience to gain insights about the use of social robots such as NAO in education, healthcare and research fields and promote students’ social emotional learning with social robots.</p> <p>The course aims to enable students to:</p> <ol style="list-style-type: none">understand what social robotics is aboutgain insights about the use of social robots such as NAO in education, healthcare and researchlearn about core computational thinking concepts and how it can be applied in our daily lifebe exposed to Artificial Intelligence (AI) in social robotsdevelop social-emotional competencies that increase students’ capacity to learn and help them navigate current and future real-world contexts and challengesdevelop a community outreach project and gain the confidence to share the knowledge of social robotics with the school community	20 hours	edm8ker Course Ref: SOFTBANK-SOROBOT	HARDWARE : <ul style="list-style-type: none">NAO Robots will be provided by edm8ker during necessary lessons.Laptops with 3.4GHz CPU, 16GB RAM, certified OpenGL graphics card or better SOFTWARE : <ul style="list-style-type: none">Softbank’s Choregraphe, requiring an active internet connection	
				PROJECT WORK	CONTACT PERSON
				<p>Students will be introduced to the project theme: Social Robotics Awareness Building project to gain insights of the use of social robots such as NAO.</p> <p>Students will explore the use of virtual NAO runs on Choregraphe to begin their project prototyping.</p>	<p>Ms See Rui Yin</p> <p>✉ ruiyin@edm8ker.com</p> <p>☎ 8183 5166</p>

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ARTIFICIAL INTELLIGENCE - OFFERED IN COLLABORATION WITH INTEL CORPORATION (1/4)	<p>The Intel AI for Youth training programme exposes students to essential concepts of AI, introduce them to machine learning models and enable them to gain an appreciation of AI Ethics and Community Problem Solving. By the end of the programme, students should be able to:</p> <p>i. Identify leverage points in a system and assess if AI solutions could be beneficial to address societal problems;</p> <p>ii. Describe and discuss potential benefits and risks of using AI;</p> <p>iii. Use Python to perform basic data science and statistics; and</p> <p>iv. Understand AI Fundamentals (e.g. Data modeling, Neural networks, Computer vision, NLP) and explain the algorithms used.</p>	34 hours OR 56 hours	<p>Sustainable Living Lab Pte Ltd</p> <p>Course Ref: INTEL-AI4YOUTH</p>	<p>HARDWARE: Laptops with Intel Core i5 processor, 8GB RAM or better</p> <p>SOFTWARE: Web-based software will be used. No installation of software required.</p>	<p>34-hour Students will be challenged on an ideation sprint to innovate an AI-enabled social impact solution to address a United Nations Sustainable Development Goal.</p> <p>56-hour Students will gain first hand experience with Intel OpenBot programme and develop additional capabilities to it. Students will challenge themselves to identify a problem area to develop a unique AI-enabled solution. They will be developing and realising their projects, honing their confidence in technical and communication skills, as well as applying AI for good. Selected projects will be given opportunities to showcase their projects and/or compete on a global platform.</p>	<p>Ms Weng Wan Ying</p> <p>✉ wanying@sustainablelivinglab.org</p> <p>☎ 8121 4127</p>

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ARTIFICIAL INTELLIGENCE - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (2/4)	OVERVIEW OF MODULE Students will gain an understanding of how Machine Learning (ML) and Natural Language Processing (NLP) works as subsets of AI. Students will also be given a holistic view of the application of AI in different industries, AI's limitations and myths surrounding AI. Ethical and Privacy issues will also be discussed.	24 hours + Optional 12 hours	EP Education Pte Ltd Course Ref: <ul style="list-style-type: none">AI-EP-SOF (24-hr)AI-EP-SOF-ADD (12-hr)	24-HOUR MODULE		Koh Choon Chuan ✉ cckoh@epasia.cc ☎ 9146 6015 Pee Hai Rou ✉ hairou@epasia.cc ☎ 9853 8811
	The project work involves the use of NLP and training of a simple machine learning model.			HARDWARE: Zumi	The students will be able to utilise a robotics kit with AI and Camera module. They will be teaching the system to detect directional signs, humanoid figures, obstacles to avoid and determine the confidence level. Based on the confidence level, the robot can determine its route to reach its intended destination safely.	
				SOFTWARE: Jupyter, Python 3		
	12-HOUR MODULE					
	OVERVIEW OF OPTIONAL ADD-ON MODULE IN DATA ANALYTICS Students will gain an understanding of how data is used in machine learning and learn how AI is able to analyse and automate the Data Collection, Data Cleaning and Data Classification process.			HARDWARE: N.A.	Students will learn how Data analytics can aid in determining patterns and solution/ strategy formation.	
				SOFTWARE: Tableau, Python 3		

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ARTIFICIAL INTELLIGENCE - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (3/4)	OVERVIEW OF MODULE Students will gain an understanding of how Machine Learning (ML) and Natural Language Processing (NLP) works as subsets of AI. Students will also be given a holistic view of the application of AI in different industries, AI’s limitations and myths surrounding AI. Ethical and Privacy issues will also be discussed.	24 hours + Optional 12 hours	Duck Learning Course Ref: <ul style="list-style-type: none">AI-DL-SOF1 (24-hr)AI-DL-SOF1-ADD (12-hr)	24-HOUR MODULE		Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201
	The project work involves the use of NLP and training of a simple machine learning model.			HARDWARE: N.A.	Students will create a Computer Vision system that detects and sorts different types of trash.	
				SOFTWARE: Pictoblox, Google Collaboratory		
				12-HOUR MODULE		
				HARDWARE: Databot	Students will work with data to determine if global warming can be slowed down by switching to fans instead of using the aircon.	
		SOFTWARE: Microsoft Excel, Arduino IDE 1.8.13, Google Data Studio				

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ARTIFICIAL INTELLIGENCE - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (4/4)	OVERVIEW OF MODULE Students will gain an understanding of how Machine Learning (ML) and Natural Language Processing (NLP) works as subsets of AI. Students will also be given a holistic view of the application of AI in different industries, AI’s limitations and myths surrounding AI. Ethical and Privacy issues will also be discussed. The project work involves the use of NLP and training of a simple machine learning model.	24 hours + Optional 12 hours	Duck Learning Course Ref: <ul style="list-style-type: none">AI-DL-SOF2 (24-hr)AI-DL-SOF2-ADD (12-hr)	24-HOUR MODULE		Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201
	HARDWARE: N.A.			Students will create a Computer Vision system that detects and sorts different types of trash.		
	SOFTWARE: Pictoblox, Google Collaboratory					
	12-HOUR MODULE					
				HARDWARE: Micro:bit	Students will work with data to determine if global warming can be slowed down by switching to fans instead of using the aircon.	
				SOFTWARE: Microsoft Excel, Google Data Studio		
	OVERVIEW OF OPTIONAL ADD-ON MODULE IN DATA ANALYTICS Students will gain an understanding of how data is used in machine learning and learn how AI is able to analyse and automate the Data Collection, Data Cleaning and Data Classification process.					

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES			DURATION	TRAINING PROVIDER/ COURSE REF
CYBERSECURITY - OFFERED IN COLLABORATION WITH CISCO AND SUPPORTED BY CSA (1/2)	<p>The Cyber Spark Programme is a collaboration between CISCO and IMDA, supported by CSA to introduce students to cyber security and how it differs from cyber-wellness. Under the programme, students will cover foundational knowledge in all aspects of security in the cyber world, including information security, systems security, network security, mobile security, physical security, ethics and laws. The programme will also build students’ skills in related technologies, procedures, defence and mitigation techniques used in protecting businesses.</p> <p>By the end of the programme, the students should be able to:</p> <div><div><div>i. Describe the principles of Confidentiality, Integrity and Availability (CIA triad);</div><div>ii. Describe the ISO Cybersecurity model;</div></div><div><div>iii. Demonstrate the ability to scan for malware and implement mitigation measures;</div><div>iv. Explain the processes and control techniques to protect confidentiality, ensure integrity and improve availability (CIA triad);</div><div>v. Explain the processes and procedures required to protect networks and systems;</div><div>vi. Demonstrate how to implement security measures to protect network devices and equipment;</div><div>vii. Describe how cybersecurity domains are used within the CIA triad;</div><div>viii. Identify and propose solutions for potential cyber security vulnerabilities.</div></div></div>			40 hours (includes 8 hours project consultation)	Republic Polytechnic Course Ref: CISCO-CYBERSPARK
	PROJECT WORK			Students are presented with a scenario in which they need to secure a simulated small home / office network, including an end-user PC (running on a virtual machine). On the office network, they have to make recommendations to improve its security. For the end-user PC virtual machine used in the office network , students would install software and configure it to be secured appropriately against security threats.	
	HARDWARE/SOFTWARE REQUIREMENTS			A presentation by the students would detail the actions they have taken to secure the virtual machine and the simulated office network.	
	HARDWARE: PC/Laptop with Microsoft Windows 8.1, 10, 11 (64-bit), Ubuntu 20.04 LTS (64-bit) or macOS 10.14 or newer.	SOFTWARE: Cisco Packet Tracer 8.2.0 (64-bit) - This software is provided free by Cisco Academy. Schools can install in their PCs at no extra cost.	DISK : 1.4 GB of free disk space for program + 15 GB free space for Virtual Machine	CONTACT PERSON	
Minimum CPU: x86-64 CPU (Intel i3 and above or equivalent)	Free Virtualization Software, e.g. Virtualbox. Schools can install in their lab PCs at no extra cost.				
Minimum RAM: 4GB of free RAM (8GB RAM and above preferred)			Mr Ivan Wee ✉ ivan_wee@rp.edu.sg ☎ 6697 1128		

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
CYBERSECURITY - 24-HOUR MODULE (2/2)	<p>OVERVIEW OF MODULE</p> <p>Students will gain an understanding of concepts such as Encryption, Endpoint Security and Networking Security. Students will also learn how to encrypt/decrypt, check and implement software (Endpoint Protection, OS Updates), as well as scan for malware and implement malware mitigation measures. Consequences of unsecured networks and types of cyberattacks will also be discussed.</p> <p>The project work requires students to setup and secure a home network and describe how they addressed potential vulnerabilities they discovered.</p>	24 hours	ACP Computer Training School Course Ref: CS-ACP-SOF	<p>HARDWARE: PC/Laptop with MS Windows (Win 7 or above), Mac with macOS (10.8 or higher). Core i5-2400 with 4GB RAM or better.</p> <p>SOFTWARE: Web-based software.</p>	<p>Students will be asked to take on the persona of a software engineer to:</p> <p>1. Set up a small area network that can be connected to internet; and</p> <p>2. Test the robustness of their classmates' network.</p>	<p>Poon Kum Seng</p> <p>✉ kum_seng@acpcomputer.edu.sg</p> <p>☎ 8102 2256</p>

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
DATA ANALYTICS - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (1/3)	OVERVIEW OF MODULE Students will gain an understanding of and learn to perform the Data Analysis Process (E.g. Data collection, Data processing, Data Cleaning, etc). Use cases and limitations of analytics will also be discussed.	24 hours + Optional 12 hours	ACP Computer Training School Course Ref: <ul style="list-style-type: none">• DA-ACP-SOF (24-hr)• DA-ACP-SOF-ADD (12-hr)	24-HOUR MODULE		Poon Kum Seng ✉ kum_seng@acpcomputer.edu.sg ☎ 8102 2256
	The project work requires students to synthesize their learning to present data to make meaningful conclusions using a commercial data analytics software.			HARDWARE: PC/Laptop with MS Windows (Win 7 or above), Mac with macOS (10.8 or higher). Core i5-2400 with 4GB RAM or better.	Students will be creating a program to find out which brand of chocolate is worth more based on the given dataset.	
				SOFTWARE: Python/ Power BI	Students will then identify the factors that make a brand valuable.	
				12-HOUR MODULE		
	OVERVIEW OF OPTIONAL ADD-ON MODULE IN IOT Students will gain an understanding of how data can be collected and exported from IoT systems to generate actionable insights using data analytics software. IoT cybersecurity and considerations of using IoT collected data will also be discussed.			HARDWARE: PC/Laptop with MS Windows (Win 7 or above), Mac with macOS (10.8 or higher). Core i5-2400 with 4GB RAM or better.	Using data from data.gov.sg and Power BI, students will be asked to create a visual presentation of the given dataset and identify patterns of the Singapore population.	
				SOFTWARE: Power BI		



SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
DATA ANALYTICS - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (2/3)	OVERVIEW OF MODULE Students will gain an understanding of and learn to perform the Data Analysis Process (E.g. Data collection, Data processing, Data Cleaning, etc). Use cases and limitations of analytics will also be discussed.	24 hours + Optional 12 hours	Duck Learning Course Ref: <ul style="list-style-type: none">• DA-DL-SOF1 (24-hr)• DA-DL-SOF1-ADD (12-hr)	24-HOUR MODULE		Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201
	The project work requires students to synthesize their learning to present data to make meaningful conclusions using a commercial data analytics software.			HARDWARE: Databot	Since Covid-19, MOE has informed all students to remain at home and for teachers to conduct classes online. Students will be asked to conduct a study for MOE on the impact of online classes on the students' grades.	
				SOFTWARE: Microsoft Excel, Arduino IDE 1.8.13, Google Data Studio		
				12-HOUR MODULE		
	OVERVIEW OF OPTIONAL ADD-ON MODULE IN IOT Students will gain an understanding of how data can be collected and exported from IoT systems to generate actionable insights using data analytics software. IoT cybersecurity and considerations of using IoT collected data will also be discussed.			HARDWARE: Arduino Explore IOT kit	Every year, over 38,000 liters of water is lost due to leaks. These leaks are caused with running taps forgotten to be closed, or leaks in the pipes at home. Students are to propose a solution to detect water leaks in a standard 5-room HDB flat in Singapore. Students will develop a working prototype of their solution.	
				SOFTWARE: Arduino IDE 1.8.13		



SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
DATA ANALYTICS - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (3/3)	OVERVIEW OF MODULE Students will gain an understanding of and learn to perform the Data Analysis Process (E.g. Data collection, Data processing, Data Cleaning, etc). Use cases and limitations of analytics will also be discussed.	24 hours + Optional 12 hours	Duck Learning Course Ref: <ul style="list-style-type: none">• DA-DL-SOF2 (24-hr)• DA-DL-SOF2-ADD (12-hr)	24-HOUR MODULE		Murtaza Njmudden  murtaza@ducklearning.com  9752 5201
	The project work requires students to synthesize their learning to present data to make meaningful conclusions using a commercial data analytics software.			HARDWARE: Micro:bit SOFTWARE: Microsoft Excel, Google Data Studio, Arduino IDE 1.8.13	Since Covid-19, MOE has informed all students to remain at home and for teachers to conduct classes online. Students will be asked to conduct a study for MOE on the impact of online classes on the students' grades.	
	OVERVIEW OF OPTIONAL ADD-ON MODULE IN IOT Students will gain an understanding of how data can be collected and exported from IoT systems to generate actionable insights using data analytics software. IoT cybersecurity and considerations of using IoT collected data will also be discussed.			12-HOUR MODULE		
				HARDWARE: Arduino Explore IOT kit SOFTWARE: Arduino IDE 1.8.13	Every year, over 38,000 liters of water is lost due to leaks. These leaks are caused with running taps forgotten to be closed, or leaks in the pipes at home. Students are to propose a solution to detect water leaks in a standard 5-room HDB flat in Singapore. Students will develop a working prototype of their solution.	

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
GAME DEVELOPMENT - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (1/2)	OVERVIEW OF MODULE Students will gain an understanding of concepts such as game mechanics and storytelling. Students will also learn how to create a game design document, storyboard, create game environments, customise non-playable characters (NPCs) as well as add randomisation, music and sounds into their games.	24 hours + Optional 12 hours	Roboto LLP Course Ref: <ul style="list-style-type: none">• GD-ROB-SOF (24-hr)• GD-ROB-SOF-ADD (12-hr)	24-HOUR MODULE		Brian Lee  brianlee@roboto.sg  9767 8052
				HARDWARE: Schools’ laptop/ computer should have a DirectX9 (or later) compatible graphic card with at least 32MB of memory. SOFTWARE: Gamemaker Studio 2	Students will be required to develop their own 2D shooter game as the final project. They will be given freedom to customize the game based on their ideas.	
	12-HOUR MODULE					
	HARDWARE: N.A. SOFTWARE: Web-based software.			Students will consolidate their learning based on the knowledge gained throughout the training and visualize them by producing their digital poster on cybersecurity. Students will work in groups to create the poster design on the topic of cybersecurity in game industry. The project will be presented and discussed among the class before the end of lesson.		


SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
GAME DEVELOPMENT – 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (2/2)	OVERVIEW OF MODULE Students will gain an understanding of concepts such as game mechanics and storytelling. Students will also learn how to create a game design document, storyboard, create game environments, customise non-playable characters (NPCs) as well as add randomisation, music and sounds into their games.	24 hours + Optional 12 hours	Stag Match Private Limited Course Ref: <ul style="list-style-type: none">• GD-SM-SOF (24-hr)• GD-SM-SOF-ADD (12-hr)	24-HOUR MODULE		Nazreen MY ✉ nazreen@smet.edu.sg Thomas Yeo ✉ thomas.yeo@smet.edu.sg ✉ info@stagmatch.com.sg ☎ 6612 7165
	HARDWARE: N.A.			Students will work to design their own games, made easier through prototyping, debugging, and preview tools using Construct 3.		
	SOFTWARE: Construct 3					
	12-HOUR MODULE					
	HARDWARE: N.A.			Student will role-play in an online game based on an actual situation of cybercrime and hacking and work as a team to prevent the crime from happening.		
	SOFTWARE: Construct 3					

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF
IMMERSIVE MEDIA - OFFERED IN COLLABORATION WITH APPLE INC	<p>The Apple New Media Programme provides students with an overview of how to use social media and digital marketing technologies to create projects that raises awareness for social issues through well-planned marketing campaigns. They will be learning from industry experts and will have hands on experience developing real marketing campaigns to create awareness for social causes.</p> <p>The program offers 2 different tracks:</p> <p>a. Apple New Media for Youths – Fundamentals: 50 hours</p> <p>b. Apple New Media for Youths – *Advanced: 50 hours</p> <p>*Only participating schools which had gone through the Fundamental track in 2022 may choose to continue to the Advanced track in 2023.</p> <p>By the end of the Fundamental track, the students should be able to:</p> <p>i. Plan and execute a Social Media Marketing plan</p> <p>ii. Integrate Augmented Reality (AR) elements as part of a Social Media Marketing Plan</p> <p>iii. Develop engaging social media content and stories</p>	<p>iv. Utilize basic photography and videography techniques (E.g. Using Clips App)</p> <p>v. Apply Design Thinking techniques</p> <p>By the end of the Advanced track, the students should be able to:</p> <p>i. Plan and execute a cross-platform Social Media Marketing plan</p> <p>ii. Create 3D Augmented Reality (AR) models from the physical world</p> <p>iii. Create and manage a Facebook Business Page</p> <p>iv. Create and manage a website using a Content Management System</p> <p>v. Utilize advanced photography and videography techniques (E.g. Using Final Cut Pro)</p>	<p>50 hours</p> <p>Make The Change</p> <p>Course Ref: APPLE-NEWMEDIA</p>
	HARDWARE/SOFTWARE REQUIREMENTS		
	<p>HARDWARE : iPads with iOS (15 or newer)</p> <p>SOFTWARE : Clips, AR Makr, Reality Composer, iMovie, Jigspace, Keynote, Pages, Numbers</p> <p>Training provider will work with schools to ensure all necessary apps are pre-installed on the iPads prior to training.</p>		
	PROJECT WORK		CONTACT PERSON
	<p>For their final project, students will be developing a social media campaign proposal for social causes, to be presented to real Social Services Agencies.</p>		<p>Mr Pedro Agurre</p> <p> pedro@makethechange.sg</p>

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
INTERNET OF THINGS - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (1/2)	OVERVIEW OF MODULE Students will gain an understanding of concepts such as IoT and wireless connectivity technologies. Students will also learn about sensors and outputs of IoT systems. The importance of security for IoT systems will also be discussed.	24 hours + Optional 12 hours	EP Education Pte Ltd Course Ref: <ul style="list-style-type: none">• IOT-EP-SOF (24-hr)• IOT-EP-SOF-ADD (12-hr)	24-HOUR MODULE		Koh Choon Chuan ✉ cckoh@epasia.cc ☎ 9146 6015 Pee Hai Rou ✉ hairou@epasia.cc ☎ 9853 8811
				HARDWARE: Halocode with Creator Add-on Pack.	Students will be creating projects that are based on the theme of sustainability. Students will use sensor data collected to design their prototype.	
				SOFTWARE: mBlock 5		
	12-HOUR MODULE					
	The project work requires students to use a creative problem-solving framework to design a prototype with at least 1 sensor to solve a pre-defined real-world problem.			HARDWARE: N.A.	Students will learn how Data analytics can aid in determining patterns and in solution/ strategy formation.	
				SOFTWARE: Tableau, Python 3		
	OVERVIEW OF ADD-ON MODULE IN DATA ANALYTICS Students will gain an understanding of the data analysis process and how their data collected from IoT systems can be visualized, analysed, and presented using a data analytics visual representation software.					

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
INTERNET OF THINGS – 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (2/2)	OVERVIEW OF MODULE Students will gain an understanding of concepts such as IoT and wireless connectivity technologies. Students will also learn about sensors and outputs of IoT systems. The importance of security for IoT systems will also be discussed. The project work requires students to use a creative problem-solving framework to design a prototype with at least 1 sensor to solve a pre-defined real-world problem. OVERVIEW OF ADD-ON MODULE IN DATA ANALYTICS Students will gain an understanding of the data analysis process and how their data collected from IoT systems can be visualized, analysed, and presented using a data analytics visual representation software.	24 hours + Optional 12 hours	Duck Learning Course Ref: <ul style="list-style-type: none">• IOT-DL-SOF (24-hr)• IOT-DL-SOF-ADD (12-hr)	24-HOUR MODULE		Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201
				HARDWARE : Arduino Explore IoT kit SOFTWARE : Arduino IDE 1.8.13, Arduino Create Agent	Problem/Project idea Every year, over 38,000 liters of water is lost due to leaks. These leaks are caused with running taps forgotten to be closed, or leaks in the pipes at home. Students are to propose a solution to detect water leaks in a standard 5-room HDB flat in Singapore. Students will develop a working prototype of their solution.	
				12-HOUR MODULE		
				HARDWARE : Micro:bits SOFTWARE : Microsoft Excel 2016 or later, Google Data Studio, Makecode for micro:bits	Since Covid-19, MOE has informed all students to remain at home and for teachers to conduct classes online. Students will be asked to conduct a study for MOE on the impact of online classes on the students’ grades.	

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES		DURATION	TRAINING PROVIDER/ COURSE REF
MOBILE APP DEVELOPMENT – OFFERED IN COLLABORATION WITH APPLE INC (1/2)	<p>The Apple Swift Programme brings an accessible introduction to mobile app development in Swift for iOS devices, by providing participants a chance to learn about introductory programming concepts in Swift.</p> <p>The program offers 2 different tracks:</p> <p>a. Apple Swift Programming – Fundamentals: 50 hours</p> <p>b. Apple Swift Programming – *Advanced: 50 hours</p> <p>*Only participating schools which have gone through the Fundamental track in 2022 may choose to continue to the Advanced track in 2023.</p> <p>By the end of the Fundamental track, the students will have learnt:</p> <p>i. Basic programming concept in the Swift language</p> <p>ii. How to use the Xcode or Swift Playgrounds development environments to create and run apps</p> <p>iii. How to use core iOS frameworks such as SwiftUI to design and build a series of guided apps</p>	<p>iv. Design and storytelling skills to propose, build, and present a meaningful app prototype on a social entrepreneurship theme</p> <p>By the end of the Advanced track, the students will have learnt:</p> <p>i. How to apply further concepts in Swift and SwiftUI</p> <p>ii. How to apply Intermediate-to-advanced level libraries and tools such as Vision, CoreML, Reality Composer, and ARKit to create mobile apps with machine learning and augmented reality built-in</p> <p>iii. Advanced design and storytelling skills to propose, build, and present a meaningful app prototype on a social entrepreneurship theme</p>	50 hours	Tinker Class Pte Ltd Course Ref: APPLE-SWIFT
	HARDWARE/SOFTWARE REQUIREMENTS			
	<p>HARDWARE : iOS devices (Macbooks or iMacs running Monterey 12.X.X and above, or iPads on iPadOS 15 and above)</p> <p>SOFTWARE : Swift Playgrounds 4.1 and above from App Store</p>			
	PROJECT WORK		CONTACT PERSON	
For their final project, students will be developing a mobile app with the aim of publishing it on the app store.		Mr Soon Yin Jie ✉ yjsoon@tinkertanker.com ☎ 9682 1694		



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APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
MOBILE APP DEVELOPMENT - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (2/2)	OVERVIEW OF MODULE Students will gain an understanding of concepts such as databases and UX/UI design. Students will also learn of the emerging trend of mobile apps and how perform to user testing. Risks of storing personal information through mobile apps will be discussed.	24 hours + Optional 12 hours	ACP Computer Training School Course Ref: <ul style="list-style-type: none">• MD-ACP-SOF (24-hr)• MD-ACP-SOF-ADD (12-hr)	24-HOUR MODULE		Poon Kum Seng ✉ kum_seng@acpcomputer.edu.sg ☎ 8102 2256
	The project work requires students to create a mobile app that allows user input. Students will have to perform user-testing on their mobile app.			HARDWARE: PC/Laptop with MS Windows (Win 7 or above), Mac with macOS (10.8 or higher). Core i5-2400 with 4GB RAM or better.	Students will be creating their own Favorites app (content of their choice) that they can download to their smartphone.	
				SOFTWARE: Ionic (No installation required)	Students will be applying what they have learnt in the course to do the project. They will plan the flow & user interface of the app using the storyboard and database requirement before developing the app. Finally, they will be testing the functionalities and UI of the app via an emulator.	
				12-HOUR MODULE		
	OVERVIEW OF ADD-ON MODULE IN DATA ANALYTICS Students will gain an understanding of the data analysis process and how data collected from their mobile app can be visualized, analysed, and presented using a data analytics visual representation software.			HARDWARE: PC/Laptop with MS Windows (Win 7 or above), Mac with macOS (10.8 or higher). Core i5-2400 with 4GB RAM or better.	Students will collect the results of football matches from year 1872 to 2019.	
				SOFTWARE: Power BI	They will create the data analytics tool using Power BI to analyse the number of matches win/loss/draw ratio. Students will then use the data gathered to predict the next win.	

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ROBOTICS – 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (1/3)	OVERVIEW OF MODULE Students will gain an understanding of computational thinking, coding, and the different parts a robot can have. Students will also learn how to design, build a prototype and test robotic automation solutions using microcontroller robots. The project work requires students to use a creative problem-solving framework to design a robot with at least 1 sensor and 1 moveable joint to solve a pre-defined real-world problem.	24 hours + Optional 12 hours	Duck Learning Course Ref: <ul style="list-style-type: none">• RB-DL-SOF1 (24-hr)• RB-DL-SOF1-ADD (12-hr)	24-HOUR MODULE		Murtaza Njmudden  murtaza@ducklearning.com  9752 5201
	HARDWARE: LEGO MINDSTORMS Education EV3 Core set SOFTWARE: EV3 Classroom Software			Project theme: Improve my life Students will be guided to: <ul style="list-style-type: none">a. Identify and refine their solution within the Empathise, Design and Ideate phases.b. Understand what they require to complete the project task.c. to build/program their solution; andd. Present their solution and critique their peers’ solutions. Trainers will roam around to assist groups in creating a sound build and efficient program.		
	12-HOUR MODULE					
	HARDWARE: Arduino Explore IoT Kit SOFTWARE: Arduino IDE 1.8.13			Every year, over 38,000 liters of water is lost due to leaks. These leaks are caused with running taps forgotten to be closed, or leaks in the pipes at home. Students are to propose a solution to detect water leaks in a standard 5-room HDB flat in Singapore. Students will develop a working prototype of their solution.		

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ROBOTICS - 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (2/3)	OVERVIEW OF MODULE Students will gain an understanding of computational thinking, coding, and the different parts a robot can have. Students will also learn how to design, build a prototype and test robotic automation solutions using microcontroller robots. The project work requires students to use a creative problem-solving framework to design a robot with at least 1 sensor and 1 moveable joint to solve a pre-defined real-world problem.	24 hours + Optional 12 hours	Duck Learning Course Ref: <ul style="list-style-type: none">• RB-DL-SOF2 (24-hr)• RB-DL-SOF2-ADD (12-hr)	24-HOUR MODULE		Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201
				HARDWARE: LEGO Education SPIKE Prime Set SOFTWARE: SPIKE PRIME App	Project theme: A Game for Everyone Students will be guided to: <ul style="list-style-type: none">a. Identify and refine their solution within the Empathise, Design and Ideate phases.b. Understand what they require to complete the project task.c. to build/program their solution; andd. Present their solution and critique their peers’ solutions. Trainers will roam around to assist groups in creating a sound build and efficient program.	
	OVERVIEW OF OPTIONAL ADD-ON MODULE IN IOT Students will gain an understanding of IoT systems and learn how to integrate robotics with IoT systems. IoT cybersecurity will also be discussed.			HARDWARE: Arduino Explore IoT Kit SOFTWARE: Arduino IDE 1.8.13	Every year, over 38,000 liters of water is lost due to leaks. These leaks are caused with running taps forgotten to be closed, or leaks in the pipes at home. Students are to propose a solution to detect water leaks in a standard 5-room HDB flat in Singapore. Students will develop a working prototype of their solution.	

SECONDARY/JC

APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ROBOTICS – 24-HOUR WITH OPTIONAL 12-HOUR COMPLEMENTARY ADD-ON MODULE (3/3)	OVERVIEW OF MODULE Students will gain an understanding of computational thinking, coding, and the different parts a robot can have. Students will also learn how to design, build a prototype and test robotic automation solutions using microcontroller robots.	24 hours + Optional 12 hours	Stag Match Private Limited Course Ref: <ul style="list-style-type: none">• RB-SM-SOF (24-hr)• RB-SM-SOF-ADD (12-hr)	24-HOUR MODULE		Nazreen MY ✉ nazreen@smet.edu.sg Thomas Yeo ✉ thomas.yeo@smet.edu.sg ✉ info@stagmatch.com.sg ☎ 6612 7165
				HARDWARE: OTTO Robot, Micro:bit	Student will put together what they’ve learnt about coding and electronics such as sensors and use of external electronics for their project.	
				SOFTWARE: Microsoft MakeCode		
	12-HOUR MODULE					
	The project work requires students to use a creative problem-solving framework to design a robot with at least 1 sensor and 1 moveable joint to solve a pre-defined real-world problem.			HARDWARE: N.A.	Students will design a simple Smart Home solution by applying their knowledge and understanding of IoT and robotic technology. Students will propose the components, devices and sensors to use for their Smart Home Model.	
	OVERVIEW OF OPTIONAL ADD-ON MODULE IN IOT Students will gain an understanding of IoT systems and learn how to integrate robotics with IoT systems. IoT cybersecurity will also be discussed.			SOFTWARE: Microsoft MakeCode		



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