**INFOCOMM
MEDIA
DEVELOPMENT
AUTHORITY**

COURSES FOR

INFOCOMM MEDIA CLUBS

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Courses For Infocomm Media Clubs (Primary & Secondary/Jc)
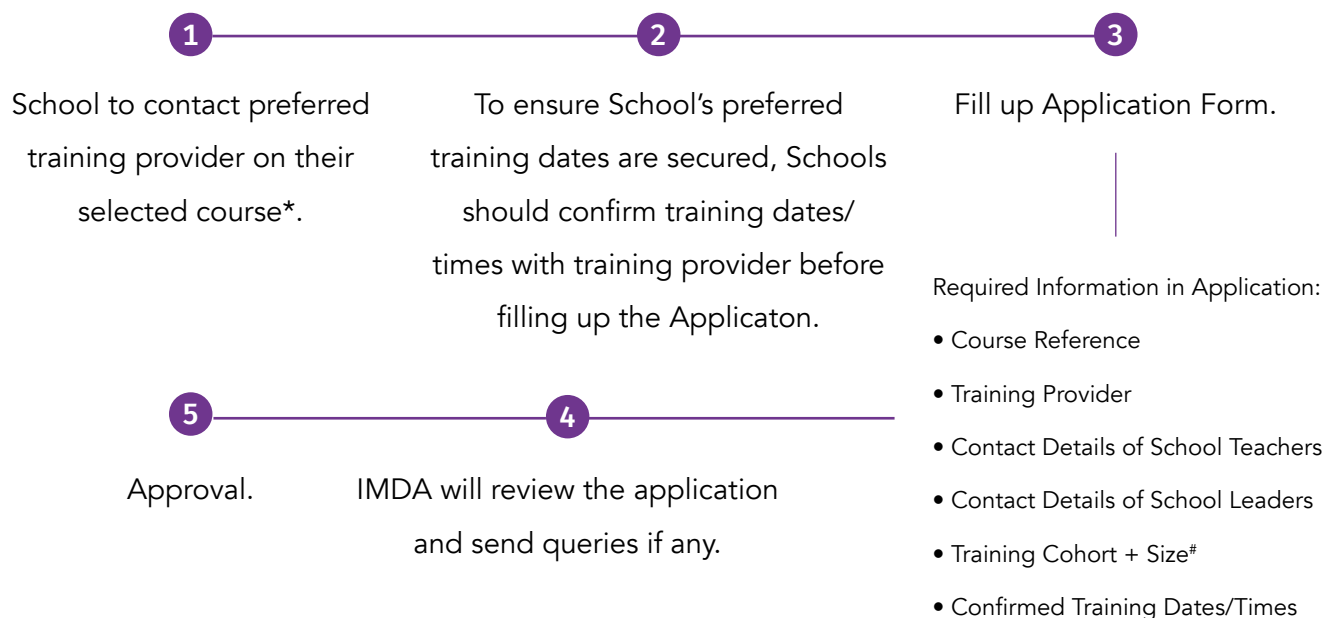
OVERVIEW

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. IMDA supports each school for up to 2 courses per year. The training cost will be fully funded by IMDA. Where there is hardware required for the training, schools can work with the training providers to procure the hardware at their own expense. The full listing of courses can be found [here.](#)

The minimum duration of each course is 24 hours. Secondary Schools/JCs can choose a complementary 12-hour add-on module to expand members' learning in certain tech domains. Please refer to the application process below.

For enquires, Schools can contact IMDA at IMDA_codesg@imda.gov.sg

APPLICATION PROCESS:

1 School to contact preferred training provider on their selected course*.

2 To ensure School's preferred training dates are secured, Schools should confirm training dates/times with training provider before filling up the Applicaton.

3 Fill up Application Form.

Required Information in Application:
- Course Reference
- Training Provider
- Contact Details of School Teachers
- Contact Details of School Leaders
- Training Cohort + Size#
- Confirmed Training Dates/Times

5 Approval.

4 IMDA will review the application and send queries if any.

Links to Application form:
- Primary School
- Secondary School/JC

#Each course should have a minimum class size of 10 students.
*Where hardware is required, schools should work with the training provider to purchase hardware at their own expense.

LIST OF COURSES FOR INFOCOMM MEDIA CLUBS

PRIMARY SCHOOL

Artificial Intelligence (A.I.)
Cybersecurity
Game Development
Mobile App Development
Robotics

SECONDARY SCHOOL/JC

Artificial Intelligence (A.I)
Cybersecurity
Data Analytics
Game Development
Internet of Things (IoT)
Mobile App Development
Robotics
Immersive Media

PRIMARY `APPLY NOW`

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ARTIFICIAL INTELLIGENCE (1/2) ✉ ☏	**OVERVIEW OF MODULE** 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. The project work will include a simple machine learning model and computer vision.	24 hours	EP Education Pte Ltd **Course Ref:** AI-EP-POF	HARDWARE: N.A. SOFTWARE: Mblock 5 (web version available)	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.	Koh Choon Chuan ✉ cckoh@epasia.cc ☏ 9146 6015 Chalmers Chin ✉ chalmerschin@epasia.cc ☏ 9758 5122

PRIMARY APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ARTIFICIAL INTELLIGENCE (2/2)	**OVERVIEW OF MODULE** 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. The project work will include a simple machine learning model and computer vision.	24 hours	Stag Match Private Limited **Course Ref:** AI-SM-POF	HARDWARE: N.A. SOFTWARE: Pictoblox	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: 1. **Artificial intelligence concepts:** a) Computer Vision; b) Face Detection; c) Optical Character Recognition; and d) Speech Recognition 2. **Machine Learning:** a) Image-Based Machine Learning Models; b) Pose-Based Machine Learning Models; and c) Audio-Based Machine Learning Models	Evelyn Wee evelyn.wee@smet.edu.sg Thomas Yeo thomas.yeo@smet.edu.sg info@stagmatch.com.sg 6612 7165

PRIMARY   APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
CYBERSECURITY	**OVERVIEW OF MODULE** Students will gain an understanding of concepts such as Encryption and Cyber-casing. Implications of cyberattacks and personal cybersecurity risks will also be discussed. The project work will allow students to deep dive into one encryption algorithm and work on understanding and using this algorithm.	**24 hours**	ACP Computer Training School **Course Ref:** CS-ACP-POF	HARDWARE: N.A. SOFTWARE: Web-based software.	Students will be given the following scenario: 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: 1) the time; 2) the location; 3) the food; and 4) the games	Poon Kum Seng ✉ kum_seng@acpcomputer.edu.sg ☎ 8102 2256

PRIMARY APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
GAME DEVELOPMENT (1/2)	**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.	**24 hours**	Roboto LLP **Course Ref:** GD-ROB-POF	HARDWARE: N.A. SOFTWARE: Scratch 3.0	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.	Brian Lee ✉ brianlee@roboto.sg 📞 9767 8052

PRIMARY APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
GAME DEVELOPMENT (2/2)	**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.	24 hours	Duck Learning **Course Ref:** GD-DL-POF	HARDWARE: N.A. SOFTWARE: Scratch 3.0	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: 1. Include a concurrent multi-player mode for at least 2 players 2. Include score-keeping 3. Include a game environment 4. Include audio e.g. background music, sound effects 5. Include at least 1 playable character and 1 non-playable character Students will document their process.	Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201

PRIMARY **APPLY NOW**

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
MOBILE APP DEVELOPMENT (1/2)	**OVERVIEW OF MODULE** 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. The project work requires students to build a mobile app.	24 hours	Roboto LLP **Course Ref:** MD-ROB-POF	HARDWARE: N.A. SOFTWARE: Thunkable Live	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.	Brian Lee ✉ brianlee@roboto.sg ☎ 9767 8052

PRIMARY APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
MOBILE APP DEVELOPMENT (2/2)	**OVERVIEW OF MODULE** 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. The project work requires students to build a mobile app.	24 hours	ACP Computer Training School **Course Ref:** MD-ACP-POF	HARDWARE: N.A. SOFTWARE: Web-based software.	Students will be creating their own movie app that they can download to their smartphone. 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.	Poon Kum Seng ✉ kum_seng@acpcomputer.edu.sg ☎ 8102 2256

PRIMARY **APPLY NOW**

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ROBOTICS (1/3)	**OVERVIEW OF MODULE** 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. The project work will require students to build a robot with a microcontroller and sensors.	24 hours	Roboto LLP **Course Ref:** RB-ROB-POF	**HARDWARE:** MakeBlock mBot (Bluetooth version) + Servo Pack Expansion Pack **SOFTWARE:** mBlock 5.3.0	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. For practical assessment, students are required to build and customize their personal mBot to solve a course and present their solution to their classmates.	Brian Lee ✉ brianlee@roboto.sg 🕿 9767 8052

PRIMARY APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ROBOTICS (2/3)	**OVERVIEW OF MODULE** 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. The project work will require students to build a robot with a microcontroller and sensors.	24 hours	Duck Learning **Course Ref:** RB-DL-POF1	HARDWARE: Lego SPIKE PRIME SOFTWARE: SPIKE PRIME App	Project theme: Care for my Community Students will be guided to: 1. Refine their solutions within the Empathise, Design and Ideate phases. 2. Identify what they require to complete the project task. 3. Build the project 4. Present their project. Trainers will roam around to assist groups in creating a sound build and efficient program.	Murtaza Njmudden ✉ murtaza@ducklearning.com 📞 9752 5201

PRIMARY APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
ROBOTICS (3/3)	**OVERVIEW OF MODULE** 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. The project work will require students to build a robot with a microcontroller and sensors.	24 hours	Duck Learning **Course Ref:** RB-DL-POF2	HARDWARE: Micro:bits Strawbees Robotics Invention for Micro:bit SOFTWARE: Makecode	Students will design and create their own motorized model. Theme: Smart Home/School/ Community Their models should: 1. Be motorized 2. Include at least 1 movable joint (output) 3. Include at least 1 type of sensor (input) Students will document their process and present their projects to their peers.	Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201

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)	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: i. Identify leverage points in a system and assess if AI solutions could be beneficial to address the problems; ii. Describe and discuss potential benefits and risks of using AI; iii. Use Python to perform basic data science and statistics; and iv. Understand AI Fundamentals (e.g. Data modeling, Neural networks, Computer vision, NLP) and explain the algorithms used.	32 hours OR 56 hours	Sustainable Living Lab Pte Ltd **Course Ref:** INTEL AI4YOUTH	HARDWARE: Laptops with Intel Core i5 processor and 8GB RAM SOFTWARE: Web-based software will be used. No installation of software required. Please contact training provider for support on hardware/software requirements.	32-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. 56-hour Students will identify a problem area in which they are interested in 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.	Ms Weng Wan Ying ✉ wanying@sustainablelivinglab.org

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. The project work involves the use of NLP and training of a simple machine learning model. **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.	24 hours + Optional 12 hours	EP Education Pte Ltd **Course Ref:** • AI-EP-SOF (24-hr) • AI-EP-SOF-ADD (12-hr)	**24-HOUR MODULE**		Koh Choon Chuan ✉ cckoh@epasia.cc 📞 9146 6015 Chalmers Chin ✉ chalmerschin@epasia.cc 📞 9758 5122
				HARDWARE: Zumi **SOFTWARE:** Jupyter, Python 3	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.	
				12-HOUR MODULE		
				HARDWARE: N.A. **SOFTWARE:** Tableau, Python 3	Students will learn how Data analytics can aid in determining patterns and solution/ strategy formation.	

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. The project work involves the use of NLP and training of a simple machine learning model. **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.	24 hours + Optional 12 hours	Duck Learning **Course Ref:** • AI-DL-SOF1 (24-hr) • AI-DL-SOF1-ADD (12-hr)	**24-HOUR MODULE** HARDWARE: N.A. SOFTWARE: Pictoblox, Google Collaboratory **12-HOUR MODULE** HARDWARE: Databot SOFTWARE: Microsoft Excel, Arduino IDE 1.8.13, Google Data Studio	**24-HOUR MODULE** Students will create a Computer Vision system that detects and sorts different types of trash. **12-HOUR MODULE** Students will work with data to determine if global warming can be slowed down by switching to fans instead of using the aircon.	Murtaza Njmudden ✉ murtaza@ducklearning.com ☏ 9752 5201

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. **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.	24 hours + Optional 12 hours	Duck Learning **Course Ref:** • AI-DL-SOF2 (24-hr) • AI-DL-SOF2-ADD (12-hr)	**24-HOUR MODULE** **HARDWARE:** N.A. **SOFTWARE:** Pictoblox, Google Collaboratory **12-HOUR MODULE** **HARDWARE:** Micro:bit **SOFTWARE:** Microsoft Excel, Google Data Studio	**24-HOUR MODULE** Students will create a Computer Vision system that detects and sorts different types of trash. **12-HOUR MODULE** Students will work with data to determine if global warming can be slowed down by switching to fans instead of using the aircon.	Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201

SECONDARY/JC   APPLY NOW

DOMAIN	COURSES		DURATION	TRAINING PROVIDER/ COURSE REF

CYBERSECURITY – OFFERED IN COLLABORATION WITH CISCO AND SUPPORTED BY CSA

(1/2)

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.

By the end of the programme, the students should be able to:

i.   Describe the principles of Confidentiality, Integrity and Availability (CIA triad);

ii. Describe the ISO Cybersecurity model;

iii. Demonstrate the ability to scan for malware and implement mitigation measures;

iv. Explain the processes and control techniques to protect confidentiality, ensure integrity and improve availability (CIA triad);

v.   Explain the processes and procedures required to protect networks and systems;

vi. Demonstrate how to implement security measures to protect network devices and equipment;

vii. Describe how cybersecurity domains are used within the CIA triad;

viii. Identify and propose solutions for potential cyber security vulnerabilities.

40 hours

Republic Polytechnic

Course Ref: CISCO SPARK

PROJECT WORK

Students are presented with a scenario in which they need to secure a simulated office network, including a 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.

A written report would be submitted detailing what are the actions they have taken to secure the virtual machine and the simulated office network.

HARDWARE/SOFTWARE REQUIREMENTS

HARDWARE: Computer (PC/laptop) with one of the following operating systems: Microsoft Windows 8.1, 10, 11 (64bit), Ubuntu 20.04 LTS (64bit) or macOS 10.14 or newer.

Minimum CPU: x86-64 CPU (Intel i3 and above or equivalent)
Minimum RAM: 4GB of free RAM (8GB RAM and above preferred)

SOFTWARE: Cisco Packet Tracer 8.1.0 (64 bit) -This software is provided free by Cisco Net Academy. Schools can install in their lab PCs at no extra cost.

Free Virtualization Software, e.g. Hyper-V (Provided by Microsoft 64 bit OS under MOE Educational licenses) or Virtualbox (Licensing_FAQ – Oracle VM VirtualBox). Schools can install in their lab PCs at no extra cost based on the above licensing.

DISK : 1.4 GB of free disk space for program   + 15 GB free space for Virtual Machine

Please contact training provider for support on hardware/software requirements.

CONTACT PERSON

Mr Ivan Wee
✉ ivan_wee@rp.edu.sg

SECONDARY/JC **APPLY NOW**

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
CYBERSECURITY – 24-HOUR MODULE (2/2)	**OVERVIEW OF MODULE** 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. The project work requires students to setup and secure a home network and describe how they addressed potential vulnerabilities they discovered.	24 hours	ACP Computer Training School **Course Ref:** CS-ACP-SOF	HARDWARE: N.A SOFTWARE: Web-based software.	Students will be asked to take on the persona of a software engineer to: 1. Set up a small area network that can be connected to internet; and 2. Test the robustness of their classmates' network.	Poon Kum Seng ✉ kum_seng@acpcomputer.edu.sg ☎ 8102 2256

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. The project work requires students to synthesize their learning to present data to make meaningful conclusions using a commercial data analytics software. **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.	24 hours + Optional 12 hours	ACP Computer Training School **Course Ref:** • DA-ACP-SOF (24-hr) • DA-ACP-SOF-ADD (12-hr)	**24-HOUR MODULE** HARDWARE: N.A. SOFTWARE: Python/ Power BI **12-HOUR MODULE** HARDWARE: N.A. SOFTWARE: Power BI	**24-HOUR MODULE** Students will be creating a program to find out which brand of chocolate is worth more based on the given dataset. Students will then identify the factors that make a brand valuable. **12-HOUR MODULE** 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.	Poon Kum Seng ✉ kum_seng@acpcomputer.edu.sg ☎ 8102 2256

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. The project work requires students to synthesize their learning to present data to make meaningful conclusions using a commercial data analytics software. **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.	24 hours + Optional 12 hours	Duck Learning **Course Ref:** • DA-DL-SOF1 (24-hr) • DA-DL-SOF1-ADD (12-hr)	**24-HOUR MODULE** **HARDWARE:** Databot **SOFTWARE:** Microsoft Excel, Arduino IDE 1.8.13, Google Data Studio **12-HOUR MODULE** **HARDWARE:** Arduino Explore IOT kit **SOFTWARE:** Arduino IDE 1.8.13	**24-HOUR MODULE** 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. **12-HOUR MODULE** 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.	Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201

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. The project work requires students to synthesize their learning to present data to make meaningful conclusions using a commercial data analytics software. **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.	24 hours + Optional 12 hours	Duck Learning **Course Ref:** • DA-DL-SOF2 (24-hr) • DA-DL-SOF2-ADD (12-hr)	**24-HOUR MODULE** **HARDWARE:** Micro:bit **SOFTWARE:** Microsoft Excel, Google Data Studio, Arduino IDE 1.8.13 **12-HOUR MODULE** **HARDWARE:** Arduino Explore IOT kit **SOFTWARE:** Arduino IDE 1.8.13	**24-HOUR MODULE** 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. **12-HOUR MODULE** 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.	Murtaza Njmudden ✉ murtaza@ducklearning.com 📞 9752 5201

SECONDARY/JC **APPLY NOW**

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF	HARDWARE/SOFTWARE REQUIREMENTS	PROJECT WORK	CONTACT PERSON
GAME DEVELOPMENT – OFFERED IN COLLABORATION WITH UNITY TECHNOLOGIES (1/3)	The 24-hour programme exposes students to game design fundamentals, programming using the Bolt visual scripting environment and game development using the Unity game engine. By the end of the programme, students should be able to: i. Navigate and use the Unity engine interface to develop games and applications; ii. Read, understand, and write code in Unity using the Bolt visual scripting environment; iii. Understand how to acquire, edit, and utilise assets from third parties for use in Unity; and iv. Learn game design fundamentals and philosophy and understand what makes for a compelling game.	24 hours	Tinker Class Pte Ltd **Course Ref:** UNITYGAME	HARDWARE: PC/Mac laptops/desktops with 8GB RAM, 15GB disk space, i5 6-core processor. For Windows, DirectX 10 is required. SOFTWARE: Unity IDE and Visual Studio editors, both software are available for free. Please contact training provider for support on hardware/software requirements.	Students will also be tasked to design and create their own game as a final project.	Mr Soon Yin Jie ✉ yjsoon@tinkertanker.com

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 (2/3)	**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. The project work requires students to design a game with progression and dynamics contents that saves players' progression to local storage. **OVERVIEW OF ADD-ON MODULE IN CYBERSECURITY** Students will gain an understanding of cybersecurity and cyberthreats in the gaming industry and how to safeguard personal data in a game from cyberattacks.	24 hours + Optional 12 hours	Roboto LLP **Course Ref:** • 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.	

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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 (3/3)	**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. The project work requires students to design a game with progression and dynamics contents that saves players' progression to local storage. **OVERVIEW OF ADD-ON MODULE IN CYBERSECURITY** Students will gain an understanding of cybersecurity and cyberthreats in the gaming industry and how to safeguard personal data in a game from cyberattacks.	24 hours + Optional 12 hours	Stag Match Private Limited **Course Ref:** • GD-SM-SOF (24-hr) • GD-SM-SOF-ADD (12-hr)	**24-HOUR MODULE** HARDWARE: N.A. SOFTWARE: Construct 3 **12-HOUR MODULE** HARDWARE: N.A. SOFTWARE: Construct 3	**24-HOUR MODULE** Students will work to design their own games, made easier through prototyping, debugging, and preview tools using Construct 3. **12-HOUR MODULE** 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.	Evelyn Wee ✉ evelyn.wee@smet.edu.sg Thomas Yeo ✉ thomas.yeo@smet.edu.sg ✉ info@stagmatch.com.sg ☎ 6612 7165

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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. 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	EP Education Pte Ltd **Course Ref:** • IOT-EP-SOF (24-hr) • IOT-EP-SOF-ADD (12-hr)	**24-HOUR MODULE** **HARDWARE:** Halocode with Creator Add-on Pack. **SOFTWARE:** mBlock 5 **12-HOUR MODULE** **HARDWARE:** N.A. **SOFTWARE:** Tableau, Python 3	**24-HOUR MODULE** Students will be creating projects that are based on the theme of sustainability. Students will use sensor data collected to design their prototype. **12-HOUR MODULE** Students will learn how Data analytics can aid in determining patterns and in solution/ strategy formation.	Koh Choon Chuan ✉ cckoh@epasia.cc ☎ 9146 6015 Chalmers Chin ✉ chalmerschin@epasia.cc ☎ 9758 5122

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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:** • IOT-DL-SOF (24-hr) • IOT-DL-SOF-ADD (12-hr)	_(see below)_	_(see below)_	Murtaza Njmudden ✉ murtaza@ducklearning.com 📞 9752 5201
				24-HOUR MODULE		
				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.	

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DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF
MOBILE APP DEVELOPMENT – OFFERED IN COLLABORATION WITH APPLE INC (1/2)	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.	50 to 100 hours	Tinker Class Pte Ltd **Course Ref:** APPLESWIFT

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.

The program offers 2 different tracks:
a. Apple Swift Programming – Fundamentals: 50 hours (In 2022)

b. Apple Swift Programming – Advanced: 50 hours (In 2023)

Only participating schools that are going through the Fundamental track in 2022 may choose to continue to the Advanced track in 2023.

By the end of the Fundamental track, the students will have learnt:
i. Basic programming concept in the Swift language

ii. How to use the Xcode or Swift Playgrounds development environments to create and run apps

iii. How to use core iOS frameworks such as SwiftUI to design and build a series of guided apps

iv. Design and storytelling skills to propose, build, and present a meaningful app prototype on a social entrepreneurship theme

By the end of the Advanced track, the students will have learnt:
i. How to apply further concepts in Swift and SwiftUI

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

iii. Advanced design and storytelling skills to propose, build, and present a meaningful app prototype on a social entrepreneurship theme.

HARDWARE/SOFTWARE REQUIREMENTS

HARDWARE:
iOS devices (Macbooks or iMacs running Monterey 12.X.X, or iPads on iPadOS 15)

SOFTWARE:
Swift Playgrounds 4 from App Store

PLEASE CONTACT TRAINING PROVIDER FOR SUPPORT ON HARDWARE/SOFTWARE REQUIREMENTS.

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

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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. 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. **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.	24 hours + Optional 12 hours	ACP Computer Training School **Course Ref:** • MD-ACP-SOF (24-hr) • MD-ACP-SOF-ADD (12-hr)	**24-HOUR MODULE** HARDWARE: N.A. SOFTWARE: Ionic. No installation Required **12-HOUR MODULE** HARDWARE: N.A. SOFTWARE: Power BI	**24-HOUR MODULE** Students will be creating their own Favorites app (content of their choice) that they can download to their smartphone. 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** Students will collect the results of football matches from year 1872 to 2019. 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.	Poon Kum Seng ✉ kum_seng@acpcomputer.edu.sg ☎ 8102 2256

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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. **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.	24 hours + Optional 12 hours	Duck Learning **Course Ref:** • RB-DL-SOF1 (24-hr) • RB-DL-SOF1-ADD (12-hr)	**24-HOUR MODULE** **HARDWARE:** LEGO MINDSTORMS Education EV3 Core set **SOFTWARE:** EV3 Classroom Software **12-HOUR MODULE** **HARDWARE:** Arduino Explore IoT Kit **SOFTWARE:** Arduino IDE 1.8.13	**24-HOUR MODULE** **Project theme: Improve my life** Students will be guided to: 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; and d. 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** 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.	Murtaza Njmudden ✉ murtaza@ducklearning.com ☎ 9752 5201

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. **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.	24 hours + Optional 12 hours	Duck Learning **Course Ref:** • RB-DL-SOF2 (24-hr) • RB-DL-SOF2-ADD (12-hr)	**24-HOUR MODULE** **HARDWARE:** LEGO Education SPIKE Prime Set **SOFTWARE:** SPIKE PRIME App **12-HOUR MODULE** **HARDWARE:** Arduino Explore IoT Kit **SOFTWARE:** Arduino IDE 1.8.13	**24-HOUR MODULE** **Project theme: A Game for Everyone** Students will be guided to: 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; and d. 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** 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.	Murtaza Njmudden ✉ murtaza@ducklearning.com 📞 9752 5201

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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. 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. **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.	24 hours + Optional 12 hours	Stag Match Private Limited **Course Ref:** • RB-SM-SOF (24-hr) • RB-SM-SOF-ADD (12-hr)	**24-HOUR MODULE** HARDWARE: OTTO Robot, Micro:bit SOFTWARE: Microsoft MakeCode **12-HOUR MODULE** HARDWARE: N.A. SOFTWARE: Microsoft MakeCode	**24-HOUR MODULE** Student will put together what they've learnt about coding and electronics such as sensors and use of external electronics for their project. **12-HOUR MODULE** 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.	Evelyn Wee ✉ evelyn.wee@smet.edu.sg Thomas Yeo ✉ thomas.yeo@smet.edu.sg ✉ info@stagmatch.com.sg ☎ 6612 7165

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APPLY NOW

DOMAIN	COURSES	DURATION	TRAINING PROVIDER/ COURSE REF
IMMERSIVE MEDIA – OFFERED IN COLLABORATION WITH APPLE INC	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.	50 to 100 hours	Make The Change **Course Ref:** APPLE NEWMEDIA

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.

The program offers 2 different tracks:

a. **Apple New Media for Youths –** Fundamentals: 50 hours (In 2022)

b. **Apple New Media for Youths –** Advanced: 50 hours (In 2023)

Only participating schools that are going through the Fundamental track in 2022 may choose to continue to the Advanced track in 2023.

By the end of the Fundamental track, the students should be able to:

i. Plan and execute a Social Media Marketing plan

ii. Integrate Augmented Reality (AR) elements as part of a Social Media Marketing Plan

iii. Develop engaging social media content and stories

iv. Utilize basic photography and videography techniques (E.g. Using Clips App)

v. Apply Design Thinking techniques

By the end of the Advanced track, the students should be able to:

i. Plan and execute a cross-platform Social Media Marketing plan

ii. Create 3D Augmented Reality (AR) models from the physical world

iii. Create and manage a Facebook Business Page

iv. Create and manage a website using a Content Management System

v. Utilize advanced photography and videography techniques (E.g. Using Final Cut Pro)

HARDWARE/SOFTWARE REQUIREMENTS

HARDWARE:
IPADS

SOFTWARE:
Training provider will work with schools to ensure all necessary apps are pre-installed on the iPads prior to training.

PLEASE CONTACT TRAINING PROVIDER FOR SUPPORT ON HARDWARE/SOFTWARE REQUIREMENTS.

PROJECT WORK	CONTACT PERSON
For their final project, students will be developing a social media campaign proposal for social causes, to be presented to real Social Services Agencies.	Mr Pedro Agurre ✉ pedro@makethechange.sg