INFOCOMM MEDIA DEVELOPMENT AUTHORITY | Infocomm Media Club

LEARN ROADMAPS

2026

INFOCOMM MEDIA CLUBS

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

For 2026, IMDA will be providing specially curated programmes and activities in the following Pillars, to enable Infocomm Media Club members to receive a well-rounded CCA experience:

- **LEARN**
- **DISCOVER**
- **LEAD**
- **EXCEL**

To find out more details, visit:
https://www.imda.gov.sg/how-we-can-help/infocomm-media-clubs

LEARN

BROAD-BASED TRAINING AND DEEP SKILLS ACQUISITION

As part of IMDA's LEARN Pillar, Infocomm Media Club members will be provided training in various Infocomm and Media domains such as Artificial Intelligence, Game Development and App Development. The intent is to spark passion for tech and media skills acquisition.

LEARN covers two training modes:

1. LEARN ROADMAPS

LEARN Roadmaps cater to broad-based training held during CCA hours at the MOE school's premises. This includes industry-backed courses, which consist curriculum and platforms endorsed by industry partners, to build up knowledge in their specialist domains. To cater to different interests, IMDA also offers tech and media courses in a broad spectrum of topics through our training providers.

2. LEARN BOOTCAMPS & ACCELERATOR

LEARN Bootcamps and Accelerators provide deep skill acquisition for Infocomm Club members. These fast-tracked learning courses are held outside of school curriculum hours, at external premises.

Infocomm Media Clubs members will apply for Bootcamps and Accelerators on individual basis. IMDA will inform schools when Bootcamps and Accelerators are ready for application, for teachers to disseminate the information to their Club members. Club members can apply directly to training vendors.

LEARN

ROADMAPS APPLICATION PROCESS

1 School to contact preferred training provided on their selected course.

2 Work out a lesson schedule stating dates & times, with training provider for the selected course. The schedule must be signed by both parties

3 Fill up application form. (By HOD or Teacher-in-charge

Required information:

- Course Name / Code
- Training Provider
- School name & CCA Name
- Level of students and class size
- Lesson schedule (signed)
- Contact details of School Leader and Teacher-in-Charge

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

5 Approval. School to record attendance for training provider to be submitted to IMDA.

POINTS TO NOTE

- IMDA supports each MOE school for up to 2 classes per year as a default. Schools that require more support can write to imda_codesg@imda.gov.sg. (A class is a group of students taught by 1 trainer throughout the course.)
- Each class must have a minimum class size of 10 students. Schools should consider the potential student attrition and absence, such as stand-down, examinations, and camps, when drawing up the lesson schedule to meet the min. class size.
- If the class size exceeds 35 students, it is advisable to split the students into 2 classes for better trainer-student engagement. The school can specify so when drawing up the lesson schedule with the training provider. Note that such an application fully utilizes the school's 2-class entitlement under Roadmaps.
- The training cost will be fully funded by IMDA. Where there is hardware required for the training, schools can work with training providers or other vendors to lease or procure the necessary hardware at their own expense.

LEARN ROADMAPS 2026

PRIMARY SCHOOL

Category	Roadmap
App Development	Apple App Development - Prototype with Keynote
	Apple App Development - Build with Swift Playgrounds
Immersive Media	Apple New Media Junior - Digital Creator
	Apple New Media Junior - Young Voices
Digital Making	Microsoft Digital Making - Basic
	Microsoft Digital Making - Intermediate
Content Creation	Google Content Creation Level 1
	Google Content Creation Level 2

Category	Roadmap
Robotics	LEGO Robotics - Beginner
	LEGO Robotics - Intermediate
	LEGO Robotics - Advanced
	UBTech AI Robotics
Game Development	Microsoft Game Development - Basic
	Microsoft Game Development - Intermediate
UI/UX Design	Figma UI/UX Design
Cyber Security	EC-Council Cyber Security

LEARN ROADMAPS 2026

SECONDARY SCHOOL / JUNIOR COLLEGE

Category	Roadmap
App Development	Apple App Development - Prototype with Keynote
	Apple App Development - Build with Swift Playgrounds and AI
Immersive Media	Apple New Media - AI-Powered Storytelling
	Apple New Media - Interactive Design
	Apple New Media - Podcast & Voice
	Apple New Media - Video Journalism
Content Creation	Google Content Creation Level 1
	Google Content Creation Level 2

Category	Roadmap
Robotics	LEGO Robotics - Intermediate
	LEGO Robotics - Advanced
	UBTech AI Robotics
Game Development	Microsoft Game Development
UI/UX Design	Figma UI/UX Design & AI Vibe Coding

APPLE APP DEVELOPMENT- PROTOTYPE WITH KEYNOTE

PRIMARY SCHOOL

Course Overview

Transform Infocomm Club members from app users to app creators! This programme takes complete beginners through real-world app development using Apple's design principles and tools. Students start by prototyping app ideas in Keynote, with no coding required, to build actual app prototypes and learn UI/UX principles. Then they progress to Swift programming to solve interactive puzzles in Swift Playground. Perfect for students with zero experience who want hands-on skills in design thinking and mobile app development using industry-standard tools.

Hardware/Software Requirements

HARDWARE: iPad with iPadOS 17 or newer: iPad 6th Gen, iPad Air 3rd Gen, iPad mini 5th Gen, iPad Pro 12" 2nd Gen, any iPad Pro 11".
See https://support.apple.com/enca/guide/ipad/ipad213a25b2/17.0/ipados/17.0.
Mac devices (Apple Silicon M-series chip) with macOS Sequoia
SOFTWARE: Keynote 14 or newer, Swift Playgrounds 4.6 or newer

Learning Objectives

By the end of the training, students will be able to:

- Know and implement app design concepts from Apple's Human Interface Guidelines
- Understand the design thinking process in relation to app development
- Create low- and high-fidelity app prototype designs
- Create interactive app prototypes to showcase ideas
- Read and write basic Swift code to solve coding puzzles

Project Work

Students will be able to: ·Create an app prototype or experience, which can be submitted for the Swift Explorers Challenge (tentatively July 2026)
·Complete Get Started with Code module on Swift Playground

Course Code / Training Hours	**PRI - APPLE APP DEV - PROTOTYPE KEYNOTE & SWIFT (26H)**
Provider / Contact Details	Tinkercademy (Tinkertanker Pte Ltd)
	Mr Soon Yin Jie 8903 6700 yjsoon@tk.sg

APPLE APP DEVELOPMENT- BUILD WITH SWIFT PLAYGROUNDS

PRIMARY SCHOOL

Course Overview
Bring your Infocomm Club coders to the next level! Students will get started with the Swift programming language and SwiftUI framework, the same professional tools used to build apps for iPhone, iPad, Mac, and Apple Vision Pro. Great for students with basic coding experience, this hands-on course uses Swift Playground on iPad to teach real programming and app development fundamentals. Students will create and run their own mobile apps while exploring UI design, navigation, app state, and interactivity — all essential skills and knowledge possessed by professional app developers.
Hardware/Software Requirements
HARDWARE: iPad with iPadOS 17 or newer: iPad 6th Gen, iPad Air 3rd Gen, iPad mini 5th Gen, iPad Pro 12" 2nd Gen, any iPad Pro 11". See https://support.apple.com/enca/guide/ipad/ipad213a25b2/17.0/ipados/17.0. Mac devices (Apple Silicon M-series chip) with macOS Sequoia **SOFTWARE**: Swift Playgrounds 4.6 or newer
Learning Objectives
By the end of the training, students will be able to: • Understand and implement basic programming concepts in the Swift language • Use Swift Playground app's development environment to create and run apps • Create mobile user interfaces with SwiftUI controls and views • Utilise the SwiftUI framework to design and build a series of interactive apps
Project Work
Students will be able to: ·Create an app prototype or experience, which can be submitted for the Swift Explorers Challenge (tentatively July 2026)

Course Code / Training Hours	**PRI - APPLE APP DEV - SWIFT PLAYGROUNDS (26H)**
Provider / Contact Details	Tinkercademy (Tinkertanker Pte Ltd)
	Mr Soon Yin Jie 8903 6700 yjsoon@tk.sg

APPLE NEW MEDIA - DIGITAL CREATORS

PRIMARY SCHOOL

Course Overview

Give your students the opportunity to become storytellers and changemakers with iPads. In this hands-on track, learners explore photography, videography, poster design, and Augmented Reality (AR), while discovering how Artificial Intelligence (AI) can enhance their creativity. Guided by the Challenge-Based Learning approach, students don't just pick up digital skills — they apply them to create meaningful projects that promote positive change. The programme culminates in a showcase where learners present their multimedia work to peers, building confidence and communication skills. Aligned with MOE's emphasis on future-ready learners, this course also equips teachers with engaging classroom practices for digital media.

Hardware/Software Requirements

HARDWARE: iPad (iPad 9th gen or later, minimum 64GB recommended)
SOFTWARE: • Keynote • Pages • Safari • Camera • Photos • Clips • iMovie • Freeform • Canva • AR Makr • Reality Composer • Padlet • Sketchbook • Procreate (Optional)

Learning Objectives

By the end of the training, students will be able to:

- Capture and edit compelling photos and videos using iPads
- Apply AI tools to generate content ideas and enhance visuals
- Design posters and presentations that communicate powerful messages
- Create simple Augmented Reality (AR) experiences with AR Makr
- Plan and execute a multimedia project from concept to showcase
- Present their projects confidently to peers
- Use digital media as a tool to promote social good and awareness

Project Work

Students will be able to: • Develop digital storytelling skills through photography and videography • Use AI tools to enhance creative content and streamline ideas • Design visually impactful posters and multimedia presentations • Create interactive and straightforward AR experiences using AR Makr • Plan, produce, and refine a complete digital media project • Present their work confidently to an audience for feedback • Apply media skills to advocate for social causes and inspire change • Participate in the Nationwide New Media Competition

Course Code / Training Hours	**PRI - APPLE NEW MEDIA - DIGITAL CREATORS (26H)**
Provider / Contact Details	Make the Change Pte Ltd
	Pedro Aguirre 8686 8675 pedro@makethechange.sg

APPLE NEW MEDIA - YOUNG VOICES

PRIMARY SCHOOL

Course Overview

This programme empowers primary school students to express themselves through their own voices and ideas. Learners will plan, script, and record podcasts, design digital posters, and explore creative AI and AR tools to enhance the interactivity of their projects. Through these activities, students learn how to share opinions on meaningful issues and collaborate effectively with peers. Teachers will find this track especially valuable for encouraging social awareness and communication skills in the classroom. The showcase at the end allows students to present their voices proudly, while teachers can celebrate their growth as confident, young changemakers.

Hardware/Software Requirements

HARDWARE: iPad (iPad 9th gen or later, minimum 64GB recommended)
SOFTWARE: • GarageBand • Voice Memos • Keynote • Canva • Pages • Safari • Padlet • Sketchbook • Procreate (Optional)

Learning Objectives

By the end of the training, students will be able to:

- Plan, script, record, and edit a podcast using GarageBand
- Design a digital poster that communicates a powerful message
- Use AI tools like Canva Magic to support storytelling and visual design
- Incorporate Augmented Reality (AR) into posters using AR Makr
- Express their voice confidently on issues they care about
- Collaborate with peers to give and receive constructive feedback
- Showcase their work to an audience and reflect on their impact as changemakers

Project Work

Students will be able to: • Create and edit their own podcast using GarageBand • Design a meaningful digital poster with Canva and Keynote • Use AI tools to brainstorm, script, and enhance their storytelling • Integrate Augmented Reality (AR) to make their posters interactive • Develop confidence in using digital tools to express ideas and opinions • Present and share their projects in a peer feedback and showcase session • Grow as creative communicators and young changemakers • Participate in the Nationwide New Media Competition

Course Code / Training Hours	**PRI - APPLE NEW MEDIA - YOUNG VOICES (26H)**
Provider / Contact Details	Make the Change Pte Ltd
	Pedro Aguirre 8686 8675 pedro@makethechange.sg

MICROSOFT DIGITAL MAKING - BASIC

PRIMARY SCHOOL

Course Overview
This course offers an introduction to the fundamentals of digital creation using the micro:bit microcontroller. Designed for beginners with little to no coding experience, it covers essential and fundamental computational thinking concepts, hands-on making skills, design thinking and the integration of the micro:bit with basic sensors and actuators. Participants will learn to coding blocks, build simple micro:bit games and prototypes with upcycled materials featuring single input and single output systems.
Hardware/Software Requirements
HARDWARE: PC/Laptop with USB Port or Mobile Device with Bluetooth Connectivity. MS will be providing the Micro:bits, accessories and making materials necessary for the workshops. **SOFTWARE:** • Microsoft MakeCode • Copilot/ChatGPT/Perplexity
Learning Objectives
By the end of the course, students will be able to: 1. Use Copilot and Perplexity to enhance and debug prototype code 2. Programme external sensors and actuators to create more complex prototypes 3. Apply design thinking in prototype development 4. Build and showcase a functional micro:bit prototype according to the theme provided
Project Work
Students will be able to: Learn basic computational thinking and coding logic. They will also gain confidence in using microcontrollers to create interactive digital solutions and understand the basics of physical computing through block-based coding. They will also create different cardboard micro:bit prototypes including: • Smart lamps • Smart burglar alarm systems • Smart fitness trackers • Micro:bit games

Course Code Training Hours	**PRI - MICROSOFT DIGITAL MAKING - BASIC (24H)**	
Provider / Contact Details	Zenitant Pte Ltd	
	Adrial Lai 9232 5024 adriallai@zenitant.com.sg	Philip Kong 9744 0711 philipkong@zenitant.com.sg

MICROSOFT DIGITAL MAKING - INTERMEDIATE

PRIMARY SCHOOL

Course Overview

This intermediate-level course is designed to strengthen students' computational thinking and problem-solving skills through the hands-on creation of engaging digital prototypes and artifacts. It emphasizes the practical application of design thinking principles to tackle real-world challenges. Students will develop micro:bit prototypes with upcycled materials, featuring more complex and multiple inputs and outputs. Students will also learn basics of Artificial Intelligence and Machine Learning, integrating Computer Vision and HuskyLens to build AI-powered solutions including Smart Farming and Smart Home Solutions.

Hardware/Software Requirements

HARDWARE: PC/Laptop with USB Port or Mobile Device with Bluetooth Connectivity. MS will be providing the Micro:bits, accessories and making materials necessary for the workshops.
SOFTWARE: • Microsoft MakeCode • Copilot/ChatGPT/Perplexity

Learning Objectives

By the end of the course, students will be able to:

1. Use Copilot and Perplexity to enhance and debug prototype code
2. Programme external sensors and actuators to create more complex prototypes
3. Apply design thinking in prototype development
4. Build and showcase a functional micro:bit prototype according to the theme provided

Project Work

Students will be able to: • Learn basic computational thinking and coding logic. They will also gain confidence in using microcontrollers to create interactive digital solutions and understand the basics of physical computing through block-based coding. They will also create different cardboard micro:bit prototypes including:
• Smart lamps • Smart burglar alarm systems • Smart fitness trackers • Micro:bit games

Course Code / Training Hours	**PRI - MICROSOFT DIGITAL MAKING - INTERMEDIATE (24H)**	
Provider / Contact Details	Zenitant Pte Ltd	
	Adrial Lai 9232 5024 adriallai@zenitant.com.sg	Philip Kong 9744 0711 philipkong@zenitant.com.sg

LEGO ROBOTICS - BEGINNER

PRIMARY SCHOOL

Course Overview
Starting with very basic mobile robotics models, students will learn to program their robot to move around efficiently. Next, students will be introduced to the sensors in the kit and how to program the robot to react to the sensors. Students will learn to program simple linear algorithms with basic conditionals (e.g. Wait-until, If-statement). The program ends with a mini-competition, Sumobot, where teams have to design and program their robot to push other robots out of a ring.
Hardware/Software Requirements
HARDWARE: LEGO Education SPIKE Prime. **SOFTWARE:** LEGO Education SPIKE Prime Software
Learning Objectives
By the end of the course, students will be able to: 1. Perform foundational coding concepts and mechanisms, including sequencing, motors, sensors, loops, and conditionals 2. Exercise their computational thinking and fostering creativity, collaboration, communication, and critical thinking skills.
Project Work
Students will be able to: Design and program their robot to perform the following tasks: • Move • Push other robots out of a ring • Enter a mini-competition

Course Code / Training Hours	**PRI - LEGO ROBOTICS - BEGINNER (24H)**	
Provider / Contact Details	Duck Learning	
	For East and West Zones: Izzat izzat@ducklearning.com	**For North and South Zones:** Dorothy dorothy@ducklearning.com

LEGO ROBOTICS - INTERMEDIATE

PRIMARY SCHOOL

Course Overview
Students will learn to create some complications in their robot with use of gears, pulleys and other mechanisms. Furthermore, students will be exposed to advanced coding concepts like data structures and algorithms. Students will come away with confidence with the proper use of sensors and motors. Students will apply their skills in a mock-competition using FIRST LEGO® League sets (provided by Duck Learning). This will give students a taste of what to expect when representing their schools in competitions.
Hardware/Software Requirements
HARDWARE: LEGO Education SPIKE Prime. **SOFTWARE:** LEGO Education SPIKE Prime Software
Learning Objectives
By the end of the course, students will be able to: 1. Understand foundational coding knowledge with advanced concepts such as multi-threaded programming, debugging, and the use of variables, arrays, and functions. 2. Explore gear mechanisms, gearing ratios, and competition preparation through flowcharting, strategy development, 3. Perform hands-on problem-solving.
Project Work
Students will be able to: apply their skills (as stated above) in a mock-competition using FIRST LEGO® League sets (provided by Duck Learning)

Course Code / Training Hours	**PRI - LEGO ROBOTICS - INTERMEDIATE (24H)**	
Provider / Contact Details	Duck Learning	
	For East and West Zones: Izzat izzat@ducklearning.com	**For North and South Zones:** Dorothy dorothy@ducklearning.com

LEGO ROBOTICS - ADVANCED

PRIMARY SCHOOL

Course Overview
Students will learn how to build simple mechanisms, create presentations fit for competitions, and understand the stresses of competitions. Students will learn about mechanism-building, creating subroutines and algorithms, and fine-tuning their robot to accomplish their missions successfully.
Hardware/Software Requirements
HARDWARE: LEGO Education SPIKE Prime. **SOFTWARE:** LEGO Education SPIKE Prime Software
Learning Objectives
By the end of the course, students will be able to: 1. Apply their advanced coding, planning, and documentation skills while learning to build passive mechanisms. 2. Emphasize the development of creativity, collaboration, communication, critical thinking, time management, and stress management skills.
Project Work
Students will participate in a FLL Competition / National Robotics Competition

Course Code / Training Hours	**PRI - LEGO ROBOTICS - ADVANCED (24H)**	
Provider / Contact Details	Duck Learning	
	For East and West Zones: Izzat izzat@ducklearning.com	**For North and South Zones:** Dorothy dorothy@ducklearning.com

UBTECH AI ROBOTICS

PRIMARY SCHOOL

Course Overview

This course introduces students to the fundamentals of robotics and coding in a structured, hands-on way. Using block-based programming, they learn how to control simple robots such as transforming cars, Mecanum wheel vehicles, and robotic arms. Alongside this, they explore basic sensor applications like distance measurement, line following, and color recognition, gradually building an understanding of how machines perceive and respond to their environment. Tasks are designed to be step-by-step and achievable, encouraging problem-solving through loops and conditionals while keeping the learning process fun and accessible. AI tools are introduced gently, serving as debugging partners that can review code, suggest improvements, and help students gain confidence in their creations.

Through this approach, young learners develop a strong foundation in logic, creativity, and technical skills that will support future learning in robotics and AI.

Hardware/Software Requirements

HARDWARE: • Chromebook with Chrome OS 64-bit • PC/Laptop with MS Windows (Win 10 or above) • Mac with macOS (Sequoia (15) or higher) • Stable Internet access connection

SOFTWARE: • uCode Link v4.9.1-1 • Google Chrome

Learning Objectives

By the end of the course, students will be able to:

1. Understand Basic Robotics Components

• Identify and describe the functions of core robot parts such as wheels, sensors, and simple controllers.

2. Apply Step-by-Step Problem Solving

• Use block-based coding commands (e.g., move forward, if-then) to program robots for tasks such as line following or obstacle avoidance.

3. Create Functional Robot Behaviors

• Build and operate simple robots (e.g., transforming car, robotic arm) to complete tasks like lifting objects, following a path, or detecting colors.

4. Evaluate and Improve Robot Performance

• Test their robots' behaviors, use AI-assisted debugging tools to identify issues, and refine their code or design for smoother operation.

Project Work

Students will be able to: • Define the robot's purpose based on a simple, real-world task (e.g., following a line, avoiding obstacles, or picking up lightweight objects). • Apply fundamental design and building principles to assemble robots such as transforming cars, robotic arms, or spider robots. • Use block-based coding commands and simple sensors to configure the robot's basic behaviours.• Experiment with AI-assisted debugging tools to test and improve their robot's performance. • Create and demonstrate a functional prototype that completes a task such as transporting an object, detecting colours, or navigating a simple path.

Course Code / Training Hours	**PRI - UBTECH ROBOTICS (24H)**	
Provider / Contact Details	Ultra Dynamics Pte Ltd	
	Li Jian 8278 1981 jian.li@tta.sg	Amelia Lim 9142 4011 amelia.lim@tta.sg

GOOGLE CONTENT CREATION - LEVEL 1

PRIMARY SCHOOL

Course Overview

This a 24-hour training course designed to equip P4-6 students with essential digital content creation skills and proficiency in various digital mediums. The course offers three distinct modules: Animation, Photojournalism, and Short-form Video Content. Schools select two of these modules to form their students' training pathway, which will be covered over 12 hours (or 16 sessions of 1.5 hours).

The learning experience is highly practical and delivered with weekly hands-on activities. These activities build towards a final project for each selected module, ensuring students gain both theoretical knowledge and technical skills. Key topics include understanding content production milestones, best practices, and applying AI with Google Gemini for creative enhancements in project phases like scripting and storytelling.

Hardware/Software Requirements

HARDWARE: • Chromebook with Chrome OS 64-bit • PC/Laptop with MS Windows (Win 7 or above) • Mac with macOS (10.8 or higher) For the production phase: • School iPads, tablet devices, or students' mobile devices (if school allows) • Stable Internet access connection • Headsets with microphones for individual students
SOFTWARE: • Google Chrome • Mobile Applications (Stop Motion Studio, CapCut or iMovie, In built photo-editing app, Google Meet).
GSA will prepare: Training accounts for participants to access their assigned Google Meet, Drive, and Gemini

Learning Objectives

By the end of the course, students will be able to:
1. Understand the rise of content creation and different types of digital content through examples on YouTube.
2. Learn best practices in creating content, including understanding the target audiences, content production milestones, and YouTube's general policy and safety guidelines.
3. Focus on stop motion animation and understand its animation concept, including the pre-production, production, and post-production phases.
4. Learn and practice basic photography composition and framing techniques (e.g. Rule of Thirds) and understand the concept of visual storytelling through photojournalism.
5. Understand the production process to create Short-form videos, including learning how to film "In-camera transition" videos and edit them into a complete sequence.

Project Work

Students will be able to:
• Gain both theoretical knowledge and technical skills in digital content creation across their chosen mediums.
• Be able to create and manage digital content effectively.
• Develop a robust knowledge base and practical skills that can be applied to competitions, though the curriculum is not tailored to any specific competition.
• Complete a final project in each of their selected modules, such as exporting a completed animated video, presenting a photo story with write-ups, or exporting short-form videos of theme-based assignments.
• Demonstrate digital citizenship by providing respectful and constructive feedback on peers' content and receiving feedback in a positive, growth-oriented manner.

Course Code / Training Hours	**PRI - GOOGLE CONTENT CREATION - LVL 1 (24H)**	
Provider / Contact Details	GSA Pte Ltd	
	Alan Wong 9237 1090 alan.wong@gsatech.com.sg	Ray Jau 9727 5956 ray.jau@gsatech.com.sg

GOOGLE CONTENT CREATION - LEVEL 2

PRIMARY SCHOOL

Course Overview

This an intermediate 24-hour training course, recommended for P4 to 6 students who have completed Level 1. It is designed to broaden and deepen students' digital content creation expertise. The course offers six distinct modules, from which returning schools can select three: Animation (Lvl 2), Photojournalism (Lvl 2), and Short-form Video Content (Lvl 2) for skills advancement; and 360˚ Video Content for Virtual Reality, Podcasting, and Live streaming for skills exploration. The learning experience is highly practical and delivered with weekly hands-on activities. These activities build toward a final project or mock competition for each selected module, ensuring students gain both theoretical knowledge and technical skills. Students will engage in more complex projects that are relevant to school and topics for social good. Each module incorporates an AI tool segment, such as using Google Gemini for storyboarding or script enhancement.
Upon completion, students will have an advanced skill set in various digital mediums and manage digital content effectively.

Hardware/Software Requirements

HARDWARE: • Chromebook with Chrome OS 64-bit • PC/Laptop with MS Windows (Win 7 or above) • Mac with macOS (10.8 or higher) For the production phase: • School iPads, tablet devices, or students' mobile devices (if school allows) • Stable Internet access connection • Headsets with microphones for individual students
SOFTWARE: • Google Chrome • Mobile Applications (Stop Motion Studio, CapCut or iMovie, In built photo-editing app, Google Meet). GSA will prepare: • Training accounts for participants to access their assigned Google Meet, Drive, and Gemini. • VR headsets for participants to experience VR/MR content and test their 360˚ videos.

Learning Objectives

By the end of the course, students will be able to:
1) Advance their existing technical skills and creativity: • Master pixilation techniques: Learn and apply the techniques of pixilation, a form of stop motion that involves live actors, to produce and engaging short animated story based on a project theme. • Analyze Photojournalism: Understand the five success factors of photojournalism: Tells a story, emotional impact, authenticity, relevance, and story composition. • Apply Filming Techniques: Learn and apply different camera shots, angles, movements and enhanced "in-camera transition" techniques for short-form video creation.

2) Explore new media technology to widen their skill sets: • Explore Extended Reality (XR): Explore the world of extended reality (XR) through hands-on exploration using VR headsets, covering immersive media formats like AR, MR, VR, and edit their 360˚ video based on a single template. • Understand Podcasting Fundamentals: Grasp core podcasting concepts, content structuring, and scripting, and apply fundamental audio recording techniques to produce clear and engaging segments. • Simulate Live Streaming: Conduct live-streaming segments in a controlled environment (using Google Meet) to improve presentation methods and engage an online audience by responding to in-call messages and reactions.

Project Work

Students will be able to:
• Gain both theoretical knowledge and technical skills in digital content creation across their chosen mediums (video, photography, animation, audio, and immersive content), enabling them to create and manage digital content effectively.
• Equipped to produce a range of final creative works related to relevant topics/projects, building towards a final project in each of their selected modules with an effective "Call to Action."
• Develop a robust knowledge base and practical skills that can be applied to competitions, though the curriculum is not tailored to any specific competition.
• Utilise AI tools like Google Gemini and Google NotebookLM to enhance their projects, such as generating storyboards, refining scripts, creating B-roll images, or generating audio podcasts.
• Demonstrate digital citizenship by providing respectful and constructive feedback on peers' content and receiving feedback in a positive, growth-oriented manner.

Course Code / Training Hours	**PRI - GOOGLE CONTENT CREATION - LVL 2 (24H)**	
Provider / Contact Details	GSA Pte Ltd	
	Alan Wong 9237 1090 alan.wong@gsatech.com.sg	Ray Jau 9727 5956 ray.jau@gsatech.com.sg

MICROSOFT GAME DEVELOPMENT - BASIC

PRIMARY SCHOOL

Course Overview
Dive into the world of game creation with this beginner-friendly workshop that introduces students to game development using MakeCode Arcade and Minecraft Education Edition. Students will learn to build their own single-player 2D games using MakeCode Arcade, including classics like Space Invaders and Flappy Bird. They'll explore sprite customization, game mechanics, scoring systems, and sound design to bring their games to life. For Minecraft Education, students will learn core game design principles, build interactive worlds tailored for solo gameplay, code gameplay mechanics using command blocks, Redstone, and the Agent. Students will also learn to create and program NPCs to guide or challenge players and design games across genres like puzzle, adventure, and resource management.
Hardware/Software Requirements
HARDWARE: • PC/Laptop with with Windows 7 or later, Intel Core i3-3210 3.2GHz / AMD A8-7600 3.1 GHz or equivalent with 2GB RAM. **SOFTWARE:** • Microsoft Minecraft Education • Microsoft MakeCode Arcade (both softwares are complimentary for MOE students to use)
Learning Objectives
By the end of the course, students will be able to: • Understand different genres of games that they can create in MakeCode Arcade and Minecraft Education • Learn core game design principles and basic gameplay mechanics for game creation in both platforms. • Create single player games like Space Invaders, Flappy Bird and others in Makecode Arcade • Design and customize single player Minecraft Education games across different genres like puzzle, adventure, and resource management • Develop and showcase their own single player games.

Project Work	
Students will be able to: With MakeCode Arcade: • Understand the fundamentals of 2D game development and game design principles • Create single-player platformer games such as Space Invaders, Flappy Bird and others • Customize sprites, backgrounds, and animations using MakeCode Arcade • Implement core game mechanics including movement, collision detection, scoring, and levels • Add sound effects and music to enhance gameplay experience • Debug and refine game code using block-based programming	**Students will be able to:** With Minecraft Education: • Apply game design concepts to build immersive single-player game worlds • Use Redstone and command blocks to create interactive game mechanics • Program the Agent to perform simple tasks and automate fundamental gameplay features • Design and code NPCs to guide, challenge, or interact with players • Develop games across genres such as puzzles, adventure, and resource management • Test, debug, and polish game worlds for playability and engagement

Course Code / Training Hours	**PRI - MICROSOFT GAME DEV - BASIC (24H)**	
Provider / Contact Details	Zenitant Pte Ltd	
	Adrial Lai 9232 5024 adriallai@zenitant.com.sg	Philip Kong 9744 0711 philipkong@zenitant.com.sg

MICROSOFT GAME DEVELOPMENT - INTERMEDIATE

PRIMARY SCHOOL

Course Overview
This comprehensive workshop is designed to elevate students' game development skills through hands-on creation of multiplayer, multi-level games using MakeCode Arcade and Minecraft Education Edition. For MakeCode Arcade, students will use AI image generators to design and customize game sprites and characters. Students will also develop multiplayer 2D platformer games with custom mechanics including multi-level gameplay with increasing levels of complexity. Students will learn how to incorporate sound effects and music to enhance immersion as well as apply advanced coding techniques to create polished, engaging experiences. For Minecraft Education, students will master Redstone engineering and command block programming that allows creation of intricate circuits and logic systems for interactive gameplay. Students will also design multiplayer game worlds across more genres like strategy, simulation, and exploration.
Hardware/Software Requirements
HARDWARE: • PC/Laptop with with Windows 7 or later, Intel Core i3-3210 3.2GHz / AMD A8-7600 3.1 GHz or equivalent with 2GB RAM. **SOFTWARE:** • Microsoft Minecraft Education • Microsoft MakeCode Arcade (both softwares are complimentary for MOE students to use)
Learning Objectives
By the end of the course, students will be able to: •Try out more genres of games in MakeCode Arcade and Minecraft Education •Learn advanced game design principles and multiplayer, multi-level gameplay mechanics, different backdrops for game creation in both platforms •Create multiplayer and multi-level games like Paddle, Galga and others in Makecode Arcade •Design and customise multiplayer/collaborative build Minecraft Education games across different genres like strategy, simulation and exploration •Develop and showcase their own multiplayer, multi-level game.
Project Work

Students will be able to: With MakeCode Arcade: • Use AI image generators to design and customize game sprites, background levels and characters. • Develop multiplayer 2D platformer games like Galga and Paddle with custom mechanics. • Build multi-level gameplay with increase complexity	**Students will be able to:** With Minecraft Education: • Learn more complex Redstone and Command block programme. • Code the agent to complete more complex tasks. • Build an open-world multiplayer strategy Minecraft game like Kingdom conquest where players compete to expand territory, gather resources, and build the strongest kingdom. • Develop collaborative multiplayer games such as Castle/Zombie Defense where players work together to protect their base from waves of mobs.

Course Code / Training Hours	**PRI - MICROSOFT GAME DEV - INTERMEDIATE (24H)**	
Provider / Contact Details	Zenitant Pte Ltd	
	Adrial Lai 9232 5024 adriallai@zenitant.com.sg	Philip Kong 9744 0711 philipkong@zenitant.com.sg

FIGMA UI/UX DESIGN

PRIMARY SCHOOL

Course Overview
Train your Infocomm Club members in UI/UX design using the same tools professionals use at companies like Google, Netflix, and Airbnb! Students will go through the design thinking process, from brainstorming ideas in FigJam, to creating stunning interactive prototypes in Figma, to presenting their solutions with Figma Slides. No coding or design experience needed, just curiosity and creativity. This course is great for students who want to develop user-focused design instincts and learn how great web and mobile apps are created before a single line of code is written.
Hardware/Software Requirements
HARDWARE: • Mac. iPad, WIndows, LInux, Chromebook **SOFTWARE:** • Figma is a web-based appplication. Compatible browsers include Chrome, Firefox, Safari or Edge.
Learning Objectives
By the end of the course, students will be able to: • Explore FigJam for brainstorming • Utilise Figma for visual and interactive prototyping • Explore and understand UI/UX concepts • Create visually appealing and intuitive digital designs for web and mobile apps
Project Work
Students will be able to: • Create a web or mobile app prototype and presentation that can be submitted for the Figma Design Challenge (tentatively July 2026).

Course Code / Training Hours	**PRI - FIGMA UI/UX DESIGN (26H)**
Provider / Contact Details	Tinkeracademy (Tinkertanker Pte Ltd)
	Mr Soon Yin Jie 8903 6700 yjsoon@tk.sg

EC-COUNCIL CYBER SECURITY

PRIMARY SCHOOL

Course Overview

This courses uses the interactive AgentHex browser-game to teach knowledge of Cybersecurity fundamentals in a fun, easy-to-understand and engaging manner. Developed by Hexcore Labs, students follow the journey of AgentHex, a budding Cyber Agent learning the ropes and slowly building himself into an Ethical Hacker! Students will interact with in-game terminals, network devices, targets and solve Cybersecurity related puzzles related to enumeration, exploitation, networking, and more to kickstart their ethical hacking journey!
Scenarios and Commands used in-game are adapted and simplified from real-life Cybersecurity scenarios and at the end of the programme, students learn how to play Capture-the-Flag competitions to complete nationally with their newfound Cybersecurity skills.

Hardware/Software Requirements

HARDWARE: • Chromebook with Chrome OS 64-bit • PC/Laptop with MS Windwos (Win 7 or above) • Mac with macOS (10.8 or higher) • iPad/Tablet with browser access • Stable Internet Connection • Physical Keyboard and Mouse for typing, especially if using a device without a keyboard **(Important)**
SOFTWARE: • Any web browser that can browse the web - Google Chrome, Firefox or Safari **Please whitelist hexcore-labs.com, hexcadearena.com and hexcorearena.com domains on your network. The whitelist should also allow for subdomains (Eg. ctf.hexcadearena.com). This is required for students to access the training, competition platform and games.

Learning Objectives

By the end of the course, students will be able to:
• Understand key networking fundamentals and how devices communicate over a network (IP addressing, network devices, DNS, network protocols)
• Understand how the internet works (Domain names, DNS, Web URLs, Subdomains)
• Understand core terminal commands to control and manage devices (System, User, File System Commands)
• Understand device file system hierarchy (Navigating file systems, understanding file paths and usage)
• Understand the concept of Remote Access and Remote Access Protocols
• Conduct information gathering on device targets and domains via Enumeration Commands
• Conduct exploitation on device targets via Brute Forcing
• Understand Fundamental Cryptography concepts through Classical Ciphers (Caesar, Vigenere, Playfair)
• Break Basic Cryptographic ciphers with available online tools • Learn about Capture-the-Flag Competitions in Cybersecurity and how to play and participate • Engage in a real CTF competition and compete with their peers

All topics are simulated through interactive gameplay within AgentHex and simplified to suit the target age.

Project Work

At the end of training, students will:
1) Enumerate and Exploit multiple in-game targets through game-based challenges throughout their AgentHex gameplay
2) Encrypt and Decrypt messages through various simple Cryptographic ciphers
3) Engage in a simulated Capture-the-Flag (CTF) competition within the AgentHex environment through game-based challenges and stand a chance to walk home with an exclusive AgentHex medal and a complete EC-Council Ethical Hacking Essentials Bundle (Ebook, Videos, Labs, Exam Prep, Exam Voucher) worth $299 USD for top 3 winners, sponsored by EC-Council.

Course Code / Training Hours	**PRI - EC COUNCIL CYBER SECURITY (24H)**
Provider / Contact Details	Hexcore Labs Pte Ltd
	Kar Wei Loh karwei@hexcore-labs.com

APPLE APP DEVELOPMENT- PROTOTYPE WITH KEYNOTE

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview
Transform Infocomm Club members from app users to app creators! This programme takes complete beginners through real-world app development using Apple's design principles and tools. Students start by prototyping app ideas in Keynote, with no coding required, to build actual app prototypes and learn UI/UX principles. Then they progress to Swift programming to solve interactive puzzles in Swift Playground. Perfect for students with zero experience who want hands-on skills in design thinking and mobile app development using industry-standard tools.
Hardware/Software Requirements
HARDWARE: iPad with iPadOS 17 or newer: iPad 6th Gen, iPad Air 3rd Gen, iPad mini 5th Gen, iPad Pro 12" 2nd Gen, any iPad Pro 11". See https://support.apple.com/enca/guide/ipad/ipad213a25b2/17.0/ipados/17.0. Mac devices (Apple Silicon M-series chip) with macOS Sequoia **SOFTWARE**: Keynote 14 or newer, Swift Playgrounds 4.6 or newer
Learning Objectives
By the end of the training, students will be able to: • Know and implement app design concepts from Apple's Human Interface Guidelines • Understand the design thinking process in relation to app development • Create low- and high-fidelity app prototype designs • Create interactive app prototypes to showcase ideas • Read and write basic Swift code to solve coding puzzles and create simple SwiftUI apps
Project Work
Students will be able to: ·Create an app prototype or experience, which can be submitted for the Swift Explorers Challenge (tentatively July 2026) ·Complete Get Started with Code module on Swift Playground

Course Code / Training Hours	**SECJC - APPLE APP DEV - PROTOTYPE KEYNOTE & SWIFT (26H)**
Provider / Contact Details	Tinkercademy (Tinkertanker Pte Ltd)
	Mr Soon Yin Jie 8903 6700 yjsoon@tk.sg

APPLE APP DEVELOPMENT- BUILD WITH SWIFT PLAYGROUNDS & AI

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

Bring your Infocomm Club coders to the next level! Students will get started with the Swift programming language and SwiftUI framework, the same professional tools used to build apps for iPhone, iPad, Mac, and Apple Vision Pro. Great for students with basic coding experience, this hands-on course uses Swift Playground on iPad to teach real programming and app development fundamentals. Students will create and run their own mobile apps while exploring UI design, navigation, app state, and interactivity — all essential skills and knowledge possessed by professional app developers.

Hardware/Software Requirements

HARDWARE: iPad with iPadOS 17 or newer: iPad 6th Gen, iPad Air 3rd Gen, iPad mini 5th Gen, iPad Pro 12" 2nd Gen, any iPad Pro 11".
See https://support.apple.com/enca/guide/ipad/ipad213a25b2/17.0/ipados/17.0.
Mac devices (Apple Silicon M-series chip) with macOS Sequoia
SOFTWARE: Swift Playgrounds 4.6 or newer

Learning Objectives

By the end of the training, students will be able to:

- Understand and implement basic programming concepts in the Swift language
- Use Swift Playground app's development environment to create and run apps
- Create mobile user interfaces with SwiftUI controls and views
- Utilise the SwiftUI framework to design and build a series of interactive apps
- Work with AI to generate SwiftUI code to enhance their apps

Project Work

Students will be able to: ·Create an app prototype or experience, which can be submitted for the Swift Explorers Challenge (tentatively July 2026)

Course Code / Training Hours	**SECJC - APPLE APP DEV - SWIFT PLAYGROUNDS (26H)**
Provider / Contact Details	Tinkercademy (Tinkertanker Pte Ltd)
	Mr Soon Yin Jie 8903 6700 yjsoon@tk.sg

APPLE NEW MEDIA - AI-POWERED STORYTELLING

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

Transform your classroom into a hub of creativity where students create zines, comics, and digital illustrations enhanced with AI tools and Augmented Reality (AR) technology. This programme equips learners with storytelling techniques that raise awareness and advocate for social change. Using iPads, students experiment with AI-generated visuals, create interactive designs, and reflect on their journey as changemakers. Teachers will value how this track integrates art, technology, and social purpose into meaningful projects, providing students with both creative confidence and real-world relevance. The final showcase highlights not only digital skills but also the ability to utilize media for impact.

Hardware/Software Requirements

HARDWARE: iPad (iPad 9th gen or later, minimum 64GB recommended)
SOFTWARE: • Keynote • Pages • Safari • Freeform • Canva • AR Makr • Reality Composer • Padlet • ChatGPT • Sketchbook • Procreate (Optional)

Learning Objectives

By the end of the training, students will be able to:

- Craft original stories using visual and narrative storytelling techniques.
- Create digital illustrations, zines, or comics using iPad apps like Sketchbook and Keynote.
- Generate creative content with AI tools such as ChatGPT, DALL·E, and Canva Magic.
- Integrate Augmented Reality (AR) elements into their visual projects using Reality Composer or AR Makr.
- Apply changemaker thinking to design stories that raise awareness or advocate for a cause.
- Plan and execute a complete digital storytelling project from ideation to presentation.
- Reflect on their learning and present their work.

Project Work

Students will be able to: • Develop confidence in using AI tools to support creative storytelling. • Produce a digital zine or comic using iPad-based drawing and layout apps. • Apply design principles and narrative structure to visual media projects. • Integrate Augmented Reality (AR) elements to enhance audience engagement. • Collaborate and provide peer feedback during the creative process. • Present and showcase their final project to peers • Reflect on their creative journey and articulate the social message behind their work. • Participate in the Nationwide New Media Competition

Course Code / Training Hours	**SECJC - APPLE NEW MEDIA - AI POWERED STORYTELL (26H)**
Provider / Contact Details	Make the Change Pte Ltd
	Pedro Aguirre 8686 8675 pedro@makethechange.sg

APPLE NEW MEDIA - INTERACTIVE DESIGN

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

Step into the future of learning with this track that combines Augmented Reality (AR), Artificial Intelligence (AI), and 3D design. Students will capture real-world objects, prototype immersive AR scenes, and use AI to generate visuals and narratives. Guided by the Challenge-Based Learning approach, they design projects that foster empathy and inspire action. For teachers, this programme provides a cutting-edge yet accessible way to nurture future-ready skills in spatial design and immersive media. The final showcase highlights students' creativity, innovation, and use of technology for social good.

Hardware/Software Requirements

HARDWARE: iPad (iPad 9th gen or later, minimum 64GB recommended)
SOFTWARE: • Keynote • Safari • Camera • Clips • iMovie • Pages • ChatGPT • Canva • Reality Composer • AR Makr • Padlet • Sketchbook • Procreate (Optional)

Learning Objectives

By the end of the training, students will be able to:

- Design and prototype immersive AR experiences using Reality Composer
- Capture and import 3D objects using Scaniverse and USDZ files
- Apply AI tools (ChatGPT, Padlet, Canva) for creative content generation
- Storyboard and plan interactive narratives that promote empathy and action
- Integrate AR, AI, and 3D elements into a cohesive interactive media project
- Showcase and reflect on their digital creations through peer feedback
- Develop future-ready skills in spatial design, immersive media, and social impact storytelling

Project Work

Students will be able to: • Understand the fundamentals of immersive storytelling using AR • Apply design thinking to create AR experiences that foster empathy • Use Reality Composer to build interactive AR scenes with 3D objects • Capture real-world items and convert them into USDZ files for AR • Generate AI-enhanced visuals and narratives using tools like ChatGPT and OpenArt • Storyboard, test, and iterate on interactive experiences for real-world relevance • Confidently present their final interactive media projects to peers

Course Code / Training Hours	**SECJC - APPLE NEW MEDIA - INTERACTIVE DESIGN (26H)**
Provider / Contact Details	Make the Change Pte Ltd
	Pedro Aguirre 8686 8675 pedro@makethechange.sg

APPLE NEW MEDIA - PODCAST & VOICE

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

Help your students find and amplify their voices through the art of podcasting. From scriptwriting and recording to sound design and editing, learners produce original podcasts with GarageBand and Apple tools. They then add a creative twist by designing AR-enabled posters to complement their audio stories. Teachers will appreciate how this programme builds communication, collaboration, and confidence while encouraging students to engage with social issues. The showcase at the end celebrates their voices in innovative formats that blend audio and interactive media.

Hardware/Software Requirements

HARDWARE: iPad (iPad 9th gen or later, minimum 64GB recommended)
SOFTWARE: • GarageBand • Pages • Safari • Keynote • AR Makr • Reality Composer • ChatGPT • Padlet • Sketchbook • Procreate (Optional)

Learning Objectives

By the end of the training, students will be able to:

- Plan, script, and record a podcast using GarageBand and Pages
- Apply sound design techniques, including music, voice layering, and effects
- Explore how podcasts can be used to raise awareness and advocate for social causes
- Integrate Augmented Reality (AR) into their podcast through interactive posters
- Collaborate effectively to produce a polished audio storytelling project
- Critically reflect on their creative process and present their work

Project Work

Students will be able to: • Understand different podcast formats and storytelling techniques • Script and record their own audio stories using GarageBand • Enhance their podcasts with sound effects, music, and editing tools • Design AR-enabled posters that link to their podcast content • Work collaboratively to produce a podcast project with a social impact focus • Present and reflect on their creative work in a final showcase • Participate in the Nationwide New Media Competition

Course Code / Training Hours	**SECJC - APPLE NEW MEDIA - PODCAST & VOICE (26H)**
Provider / Contact Details	Make the Change Pte Ltd
	Pedro Aguirre 8686 8675 pedro@makethechange.sg

APPLE NEW MEDIA - VIDEO JOURNALISM

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

Empower your students to become visual storytellers who effectively document real-world issues with lasting impact. In this immersive track, learners develop core journalism skills — planning, filming, interviewing, and editing — using iPads and Apple's creative tools. They will also enhance their projects with AI and AR, bringing innovation to documentary-style storytelling. For teachers, this track enhances students' media literacy, critical thinking, and teamwork, aligning with the MOE's push for authentic learning. The final showcase provides a powerful platform for students to present their stories and advocate for change.

Hardware/Software Requirements

HARDWARE: iPad (iPad 9th gen or later, minimum 64GB recommended)
SOFTWARE: • GarageBand • Voice Memos • Keynote • Canva • Pages • Safari • Padlet • Sketchbook • Procreate (Optional)

Learning Objectives

By the end of the training, students will be able to:

- Plan and produce short-form video journalism pieces using iPads
- Apply interview and scriptwriting techniques to capture authentic stories
- Use Apple tools like Clips, iMovie, and Keynote for filming and editing
- Enhance videos with AI-generated elements and AR overlays
- Communicate social impact messages effectively through visual storytelling
- Work collaboratively to research, storyboard, and execute a docu-style project
- Critically evaluate media content and reflect on the creative process
- Present and share their final video projects with an audience confidently

Project Work

- **Students will be able to:** • Gain confidence in using iPads for video production and editing • Demonstrate compelling storytelling through interviews and visuals • Apply AI and AR tools to enhance the impact of their stories • Collaborate in teams to plan, film, and produce a docu-style video • Develop media literacy and critical thinking skills • Advocate for a social cause using digital storytelling • Reflect on their learning journey and creative decisions • Present their final projects to peers and receive constructive feedback • Participate in the Nationwide New Media Competition

Course Code Training Hours	**SECJC - APPLE NEW MEDIA - VIDEO JOURNALISM (26H)**
Provider / Contact Details	Make the Change Pte Ltd
	Pedro Aguirre 8686 8675 pedro@makethechange.sg

GOOGLE CONTENT CREATION - LEVEL 1

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

This is a 24-hour training course designed to equip students with essential digital content creation skills across Animation, Photojournalism, and Short-form Video Content. Schools select two of these modules to form their students' training pathway, which will be covered over 12 sessions (or 16 sessions of 1.5 hours). The course features advanced project tasks and techniques suited to older students - such as adding subtitles, voice-overs, creative photo compositions, in-camera transitions, and manual looping effects. Throughout the course, students gain practical experience and theoretical knowledge, progressing toward a final project in each module. Emphasis is placed on content production milestones, best practices, and using AI tools like Google Gemini for scripting and storyboarding enhancements.

Upon completion, students will be able to create and manage digital content effectively.

Hardware/Software Requirements

HARDWARE: • Chromebook with Chrome OS 64-bit • PC/Laptop with MS Windows (Win 7 or above) • Mac with macOS (10.8 or higher) For the production phase: • School iPads, tablet devices, or students' mobile devices (if school allows) • Stable Internet access connection • Headsets with microphones for individual students
SOFTWARE: • Google Chrome • Mobile Applications (Stop Motion Studio, CapCut or iMovie, In built photo-editing app, Google Meet).
GSA will prepare: Training accounts for participants to access their assigned Google Meet, Drive, and Gemini

Learning Objectives

By the end of the course, students will be able to:
1. Understand the rise of content creation and different types of digital content through examples on YouTube.
2. Learn best practices in creating content, including understanding the target audiences, content production milestones, and YouTube's general policy and safety guidelines.
3. Focus on stop motion animation and understand its animation concept, including the pre-production, production, and post-production phases.
4. Acquire proficiency in fundamental and advanced photography composition and framing techniques, while gaining a comprehensive understanding of visual storytelling principles within the context of photojournalism.
5. Understand the production process to create Short-form videos, including learning how to film "In-camera transition with objects" videos and edit them into a complete sequence.

Project Work

Students will be able to:
• Gain both theoretical knowledge and technical skills in digital content creation across their chosen mediums.
• Be able to create and manage digital content effectively.
• Develop a robust knowledge base and practical skills that can be applied to competitions, though the curriculum is not tailored to any specific competition.
• Complete a final project in each of their selected modules, such as exporting a completed animated video, presenting a photo story with write-ups, or exporting short-form videos of theme-based assignments.
• Demonstrate digital citizenship by providing respectful and constructive feedback on peers' content and receiving feedback in a positive, growth-oriented manner.

Course Code Training Hours	**SECJC - GOOGLE CONTENT CREATION - LVL 1 (24H)**	
Provider / Contact Details	GSA Pte Ltd	
	Alan Wong 9237 1090 alan.wong@gsatech.com.sg	Ray Jau 9727 5956 ray.jau@gsatech.com.sg

GOOGLE CONTENT CREATION - LEVEL 2

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

This is an intermediate 24-hour training course for students who have completed Level 1. It is designed to broaden and deepen students' digital content creation expertise. The course offers six distinct modules, from which returning schools can select three: Animation (Lvl 2), Photojournalism (Lvl 2), and Short-form Video Content (Lvl 2) for skills advancement; and 360˚ Video Content for Virtual Reality, Podcasting, and Live streaming for skills exploration. Advanced project tasks and skills training are catered for older students, with peer and GSA grading using assessment rubrics for Lvl 2 modules. (Animation | Photojournalism | Short-form Video Content). The learning experience is highly practical and delivered with weekly hands-on activities. These activities build toward a final project or mock competition for each selected module, ensuring students gain both theoretical knowledge and technical skills. Students will engage in more complex projects that are relevant to school and topics for social good. Each module incorporates an AI tool segment, such as using Google Gemini for storyboarding or script enhancement. Upon completion, students will have an advanced skill set in various digital mediums and manage digital content effectively. Please contact us to find out more about the training modules and select the suitable modules for your students.

Hardware/Software Requirements

HARDWARE: • Chromebook with Chrome OS 64-bit • PC/Laptop with MS Windows (Win 7 or above) • Mac with macOS (10.8 or higher) For the production phase: • School iPads, tablet devices, or students' mobile devices (if school allows) • Stable Internet access connection • Headsets with microphones for individual students

SOFTWARE: • Google Chrome • Mobile Applications (Stop Motion Studio, CapCut or iMovie, In built photo-editing app, Google Meet). GSA will prepare: • Training accounts for participants to access their assigned Google Meet, Drive, and Gemini. • VR headsets for participants to experience VR/MR content and test their 360˚ videos.

Learning Objectives

By the end of the course, students will be able to:

1) Advance their existing technical skills and creativity: • Master pixilation techniques: Learn and apply the techniques of pixilation, a form of stop motion that involves live actors, to produce and engaging short animated story based on a project theme. • Analyze Photojournalism: Understand the five success factors of photojournalism: Tells a story, emotional impact, authenticity, relevance, and story composition. • Apply Filming Techniques: Learn and apply different camera shots, angles, movements and enhanced "in-camera transition" techniques for short-form video creation.

2) Explore new media technology to widen their skill sets: • Explore Extended Reality (XR): Explore the world of extended reality (XR) through hands-on exploration using VR headsets, covering immersive media formats like AR, MR, VR, and edit their 360˚ video based on a single template. • Understand Podcasting Fundamentals: Grasp core podcasting concepts, content structuring, and scripting, and apply fundamental audio recording techniques to produce clear and engaging segments. • Simulate Live Streaming: Conduct live-streaming segments in a controlled environment (using Google Meet) to improve presentation methods and engage an online audience by responding to in-call messages and reactions.

Project Work

Students will be able to:

• Gain both theoretical knowledge and technical skills in digital content creation across their chosen mediums (video, photography, animation, audio, and immersive content), enabling them to create and manage digital content effectively.

• Equipped to produce a range of final creative works related to relevant topics/projects, building towards a final project in each of their selected modules with an effective "Call to Action."

• Develop a robust knowledge base and practical skills that can be applied to competitions, though the curriculum is not tailored to any specific competition.

• Utilise AI tools like Google Gemini and Google NotebookLM to enhance their projects, such as generating storyboards, refining scripts, creating B-roll images, or generating audio podcasts.

• Demonstrate digital citizenship by providing respectful and constructive feedback on peers' content and receiving feedback in a positive, growth-oriented manner.

Course Code Training Hours	**SECJC - GOOGLE CONTENT CREATION - LVL 2 (24H)**	
Provider / Contact Details	GSA Pte Ltd	
	Alan Wong 9237 1090 alan.wong@gsatech.com.sg	Ray Jau 9727 5956 ray.jau@gsatech.com.sg

LEGO ROBOTICS - INTERMEDIATE

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview
Students will learn to create some complications in their robot with use of gears, pulleys and other mechanisms. Furthermore, students will be exposed to advanced coding concepts like data structures and algorithms. Students will come away with confidence with the proper use of sensors and motors. Students will apply their skills in a mock-competition using FIRST LEGO® League sets (provided by Duck Learning). This will give students a taste of what to expect when representing their schools in competitions.
Hardware/Software Requirements
HARDWARE: LEGO Education SPIKE Prime. **SOFTWARE:** LEGO Education SPIKE Prime Software
Learning Objectives
By the end of the course, students will be able to: 1. Understand foundational coding knowledge with advanced concepts such as multi-threaded programming, debugging, and the use of variables, arrays, and functions. 2. Explore gear mechanisms, gearing ratios, and competition preparation through flowcharting, strategy development, 3. Perform hands-on problem-solving.
Project Work
Students will be able to: apply their skills (as stated above) in a mock-competition using FIRST LEGO® League sets (provided by Duck Learning)

Course Code / Training Hours	**SECJC - LEGO ROBOTICS - INTERMEDIATE (24H)**	
Provider / Contact Details	Duck Learning	
	For East and West Zones: Izzat izzat@ducklearning.com	**For North and South Zones:** Dorothy dorothy@ducklearning.com

LEGO ROBOTICS - ADVANCED

PRIMARY SCHOOL

Course Overview
Students will learn how to build simple mechanisms, create presentations fit for competitions, and understand the stresses of competitions. Students will learn about mechanism-building, creating subroutines and algorithms, and fine-tuning their robot to accomplish their missions successfully.
Hardware/Software Requirements
HARDWARE: LEGO Education SPIKE Prime. **SOFTWARE:** LEGO Education SPIKE Prime Software
Learning Objectives
By the end of the course, students will be able to: 1. Apply their advanced coding, planning, and documentation skills while learning to build passive mechanisms. 2. Emphasize the development of creativity, collaboration, communication, critical thinking, time management, and stress management skills.
Project Work
Students will participate in a FLL Competition / NRC

Course Code / Training Hours	**SECJC - LEGO ROBOTICS - ADVANCED (24H)**	
Provider / Contact Details	Duck Learning	
	For East and West Zones: Izzat izzat@ducklearning.com	**For North and South Zones:** Dorothy dorothy@ducklearning.com

UBTECH AI ROBOTICS

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

This course challenges students to extend their skills into more advanced, real-world applications of robotics and artificial intelligence. Students experiment with obstacle avoidance, line recognition, and robotic arm control, while also incorporating gesture, facial, and text recognition to design dynamic robot responses. Open-ended tasks such as QR-code navigation, warehouse-style delivery systems, and color-based sorting encourage students to design, test, and refine solutions that require both creativity and technical accuracy. Programming shifts from simple routines to more sophisticated algorithmic thinking, where learners fine-tune thresholds, speeds, and control strategies for optimal performance. AI tools play a greater role at this stage, helping students test logic, troubleshoot errors, and explore how real engineers use AI to enhance coding efficiency.
This deeper engagement fosters critical thinking, collaboration, and adaptability, equipping students with practical skills to connect robotics and AI to meaningful real-world challenges.

Hardware/Software Requirements

HARDWARE: • Chromebook with Chrome OS 64-bit • PC/Laptop with MS Windows (Win 10 or above) • Mac with macOS (Sequoia (15) or higher) • Stable Internet access connection
SOFTWARE: • uCode Link v4.9.1-1 • Google Chrome

Learning Objectives

By the end of the course, students will be able to:
1. Understand Advanced Robotics and Sensors
• Explain how different sensors (e.g., distance, line, color, QR recognition) and recognition systems (gesture, facial, OCR) are applied in robotics.
2. Apply Algorithmic Thinking to Problem Solving
• Program robots to complete open-ended challenges such as obstacle avoidance, multi-step navigation, or warehouse-style delivery tasks.
3. Create Integrated Robotic Solutions
• Design and implement robotic systems that combine movement, recognition, and object manipulation to solve real-world inspired problems.
4. Evaluate and Improve Robotic Systems
• Test and troubleshoot robotic programs using AI tools, refine algorithms for efficiency and accuracy, and iteratively improve designs based on performance outcomes.

Project Work

Students will be able to: • Define a robotics challenge based on user or environmental requirements (e.g., navigating a maze, sorting items by colour, or completing a warehouse delivery route). • Apply design thinking and robotics principles to plan integrated systems combining sensors, recognition tools, and movement. • Develop and configure robot behaviours using advanced block-based programming, including algorithmic logic and multi-step workflows. • Use AI tools to test, troubleshoot, and refine recognition accuracy, navigation efficiency, and system reliability. • Create and present a working prototype that demonstrates a complete, real-world inspired solution such as QR-guided navigation, gesture-controlled robots, or automated sorting and delivery.

Course Code / Training Hours	**SECJC - UBTECH ROBOTICS (24H)**	
Provider / Contact Details	Ultra Dynamics Pte Ltd	
	Li Jian 8278 1981 jian.li@tta.sg	Amelia Lim 9142 4011 amelia.lim@tta.sg

MICROSOFT GAME DEVELOPMENT

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

In this course, students will learn game development by building a Dino game and a Flappy Bird clone, mastering HTML, JavaScript, and Phaser integration. They will use GitHub Codespaces for version control and create a picture-based click adventure game. The course also covers tile maps, level design, and free 2D assets for a platformer game, which will include enemies, collectibles, and checkpoints. Finally, students will work on independent projects, receive consultations, and present their completed games.

Hardware/Software Requirements

HARDWARE: • Chromebook with Chrome OS 64bits. PC/Laptop with MS Windows (Win 7 or above), Mac with macOS (10.8 or higher). Core i5-2400 with 4GB RAM or better.
SOFTWARE: • Vscodeedu • GitHub CodeSpaces • GitHub Copilot. Both software are commplimentary for MOE students to use.

Learning Objectives

By the end of the course, students will be able to: • The course aims to immerse students in game development, starting with building a Dino game to learn Phaser basics, HTML, and JavaScript integration. They will complete the Dino game with obstacles and scoring, then move on to creating a Flappy Bird clone, focusing on game mechanics and states. Students will also be introduced to GitHub Codespaces for version control and build a picture-based click adventure game. The course covers tile maps, level design, and free 2D assets for creating a platformer game, which will be enhanced with enemies, collectibles, and checkpoints. Finally, students will work on independent projects, receive consultations, and present their completed games, showcasing their learning and receiving feedback.

Project Work

Students will be able to:
• Learn core game development/ design principles • Learn Phaser basics, HTML and JavaScript integration • Create platformer games such as Dino and Flappy Bird Game • Learn to use GitHub Codespaces and AI in game creation process • Create simple Picture-Based Click Game • Create more complex platformer games with 2D Assets with AI assistance

Course Code / Training Hours	**SECJC - MICROSOFT GAME DEV (24H)**	
Provider / Contact Details	Zenitant Pte Ltd	
	Adrial Lai 9232 5024 adriallai@zenitant.com.sg	Philip Kong 9744 0711 philipkong@zenitant.com.sg

FIGMA UI/UX DESIGN & AI VIBE CODING

SECONDARY SCHOOL / JUNIOR COLLEGE

Course Overview

Train your Infocomm Club members in UI/UX design using the same tools professionals use at companies like Google, Netflix, and Airbnb! Students will go through the design thinking process, from brainstorming ideas in FigJam, to creating stunning interactive prototypes in Figma, to presenting their solutions with Figma Slides. No coding or design experience needed, just curiosity and creativity. Students will also learn to use Figma Make, the new AI vibe coding tool, to create full working web app prototypes.

This course is great for students who want to develop user-focused design instincts and learn how great web and mobile apps are created before a single line of code is written.

Hardware/Software Requirements

HARDWARE: • Mac. iPad, WIndows, LInux, Chromebook
SOFTWARE: • Figma is a web-based appplication. Compatible browsers include Chrome, Firefox, Safari or Edge. • Students are encouraged to sign up for free Figma Edu accounts to get access to Figma Make.

Learning Objectives

By the end of the course, students will be able to:
• Explore FigJam for brainstorming
• Utilise Figma for visual and interactive prototyping
• Explore and understand UI/UX concepts
• Create visually appealing and intuitive digital designs for web and mobile apps
• "Vibe code" and create a web app using text prompts using Figma Make

Project Work

Students will be able to:
• Create a web or mobile app prototype and presentation that can be submitted for the Figma Design Challenge (tentatively July 2026).

Course Code / Training Hours	**SECJC - FIGMA UI/UX & VIBE CODE (26H)**
Provider / Contact Details	Tinkercademy (Tinkertanker Pte Ltd)
	Mr Soon Yin Jie 8903 6700 yjsoon@tk.sg

Information correct as of 16 Dec 2025.

Info-communications Media Development Authority
10 Pasir Panjang Road
#03-01 Mapletree Business City
Singapore 117438

For enquiries please contact the Code@SG team at IMDA:
imda_codesg@imda.gov.sg