PYDC

PENANG YOUNG DIGITAL TALENT

PROGRAM HANDBOOK



AUGMENTED REALITY [AR]

2023

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PYDC

PENANG 2030 ♥PENANG YOUTH For Future

PROGRAMME SPECIFICATION

Programme Title	Metaverse: Augmented Reality (AR) Technology for Beginners (Workshop) AR Competition : Shaping Your Augmented Reality Realm
Awarding Body	Penang Youth Development Corporation (PYDC)
Collaboration	BigDomain, VTF
Trainer	Dr Edmund Ng Giap Weng Faculty of Computing and Informatics Universiti Malaysia Sabah
Final Awards	Certificate of Augmented Reality (AR) Technology
Mode of Study	Online (Zoom Meeting), Competition : Project Submission
Duration	3 days full training session
Medium	English
Intake	August 2023
Target of participants	200
Sponsorship	Penang Youth Development Corporation (PYDC)
Award Ceremony	Conferment of certificate

OBJECTIVES

Foster Creativity: Encourage participants to explore their creative potential by designing and developing innovative Augmented Reality experiences that push the boundaries of imagination.

Enhance Technical Skills: Provide a platform for youth to enhance their technical skills in areas such as AR development, coding, 3D modeling, and interaction design, thereby preparing them for careers in technology and related fields.

Promote Collaboration: Cultivate a spirit of collaboration by forming diverse teams that combine technical skills with artistic creativity, promoting the exchange of ideas and fostering teamwork.

Real-World Application: Challenge participants to apply their AR knowledge to real-world scenarios, solving practical problems and addressing contemporary challenges across industries.

Empower Problem Solving: Encourage critical thinking and problem-solving abilities as participants conceptualize, design, and develop AR solutions to address specific challenges or opportunities.

Boost Digital Literacy: Promote digital literacy by engaging youth in hands-on experiences that require them to navigate AR tools, technologies, and platforms effectively.

Showcase Innovation: Provide a platform for young creators to showcase their innovative AR projects, encouraging them to think outside the box and present their unique visions to a wider audience.

Cultivate Entrepreneurship: Inspire an entrepreneurial mindset among participants as they develop AR applications with commercial potential, fostering a sense of initiative and business acumen.

PROGRAM TIMELINE

2,3,9 Sept 2023

Lets Explore on Augmented Reality (AR) 3-Day Workshop via Zoom Online



10 Sept – 15 Oct 2023

Open Registration for Augmented Reality Competition : Shaping Your Augmented Reality Realm



11 & 25 Nov 2023

Mentoring Session for registered participants on AR Competition.



30 Nov 2023

Due date for Project Submission.



1-15 Dec 2023

Judging Session in selecting 10 Finalists.



31 Dec 2023

Announcement of 10 finalist.



1-13 Jan 2024

Project Submission for top 10 Finalists.



final

FINALIST PITCHING & PYDT 3.0 AWARD CEREMONY

27 JANUARY 2024

THE REQUIREMENT

Entry Requirements

- Full time student
- Malaysian & Non-Malaysian
- Youth with age range 15 – 25
- Youth all around Malaysia (Secondary, College, University)

English Proficiency Requirements

- English proficiency with ability to understand and to communicate.
- Ability to write in English.

Certification Requirement

- Minimum of 80% of attendance of the entire course
- Fulfil the requirement.

TERMS & CONDITIONS

for COMPETITION

1. **Eligibility**: The competition is open to participants aged 15 to 25 who are Malaysian citizens For. Non-Malaysian participants, at least one Malaysian member must be included in their group.
2. **Group Size**: Teams can consist of 2 to 5 members of students. Lecturers, teachers can be group advisor.
3. **Mentoring Session**: Participation in mentoring sessions is optional for all teams.
4. **Submission Deadline**: All teams must submit their projects on or before the specified due date.
5. **Individual Work**: The submitted projects must be the original work of the participating teams. Product or innovation must relate to metaverse technologies.(e.g., AR, VR, Mixed Reality)
6. **File Format**: Projects must be submitted in an appropriate digital format for augmented reality applications.
7. **Finalist Requirements**: Finalist teams selected must be present on the final day of the competition.
8. **Presentation**: Selected finalist teams will be required to prepare a slideshow presentation to showcase their projects to the judges.
9. **Disqualification**: Teams that fail to submit their projects upon the due date will be disqualified from the competition.
10. **Disclaimer**: The organizer reserves the right to reject any application for participation that have been sent if there is falsification of information.

MENTOR'S PROFILE



Edmund Ng is currently a **Professor at the Faculty of Computing and Informatics and also was Director of Centre for E-Learning, Universiti Malaysia Sabah (UMS).** Previously he was in Faculty of Cognitive Sciences and Human Development and was the Director of Centre of Excellence for Semantic Technology and Augmented Reality (CoESTAR) in UNIMAS Since 2007 to 2018. He obtained his PhD in Computer Sciences, Salford University, Manchester, UK, and BSc. (Hons) Cognitive Sciences, UNIMAS. His expertise is in the area of Augmented Reality (AR), Virtual Reality (VR), Interactive technologies and Artificial Intelligence (AI), Blockchain, Internet of Things (IOT) and the Use of AI to enhance trainer capability in the social, organizational and ICT deployment in organizations.

Edmund has published more than 100 research papers in book chapters, journals, conference, policy papers, posters and newsletters. He been appointed as Visiting Professor, Hainan Vocational Univesity of Science and Technology, China; Adjunct Professor, LimKokWing University of Creative Technology and Adjunct Professor, Technology College Sarawak. He also appointed as Academic Advisor, Sunway University Malaysia; Academic Advisor, IMEC Education Group (IMEC); Academic Advisor, Sabah Institute of Art (SIA); Research Fellow of Institute of Design and Innovation (INDI) UNIMAS; Special Advisor to few Industries and Agencies as such MIMOS Berhad; Planetarium Negara; Museum Sabah; UMS Investment Sdn Bhd; Ultraniq International Sdn Bhd; KoBandaraya Agriculture Corporation Berhad; IBN (M) Sdn Bhd; I Education & Career Development Sdn Bhd (IECD); Ateneum Resources Enterprice, etc. Currently, Edmund is appointed as Corporate Advisor to QMIS Financial Group and successfully securing project funding for Waste Management Technology and Transforming Sabah towards Smart Agriculture state. Edmund has secured more than 100 projects and consultations projects for Teaching, R&D and Commercialization in the universities or industries with total amount more than RM10 Million. He been appointed as paper reviewers in referred journals, international Conferences and books; international journal editorial board, co-chair in international conferences; and as invited speaker and facilitator for many conferences, research seminars and workshops. He has successfully graduated 5 PhDs and 16 Master by Research students and more than 200 undergraduate students. Currently, he is supervising 12 PhDs, and 6 Master by Research students. He also been appointed as internal and external postgraduate examiner from public and private university in Malaysia. Edmund has received more than 80 national and international awards from R&D projects; Copyright/Patent Award, and has secured more than 10 R&D Intellectual Properties Software Copyrights Patents Filing.

CONTENT OUTLINE

DAY 1

Time	Introduction to Augmented Reality
9:00am	M1 : Introduction to AR
10:00am	M2 : Tracking & Interaction Technique for AR
10:45am	**Morning Tea Break**
11:00am	M3 : Developing Applications with UNITY 3D
12:00am	M4 : Overview of UNITY 3D
1:00pm	**Lunch Break**
2:00pm	M5 : My First AR Apps
3:00pm	M6 : Basic Introduction to Mobile AR
4:00pm	**Afternoon Tea Break**
5:00pm	M7 : AR Examples

M = Module

CONTENT OUTLINE

DAY 2

Time	Mobile AR
9:00am	M1 : Introduction to Wearable & Situated Computing
10:00am	M2 : AR in a Mobile Setting
10:45am	**Morning Tea Break**
11:00am	M3 : Current Implementations
12:00am	M4 : Tracking a Mobile User
1:00pm	**Lunch Break**
2:00pm	M5 : Mobile Display & Computing Hardware
3:00pm	M6 : Environmental Modeling and User Interface Issues
4:00pm	**Afternoon Tea Break**
5:00pm	M7 : Discussion/Demos

M = Module

CONTENT OUTLINE

DAY 3

Time	Fundamentals of 3D Development with UNITY 3D
9:00am	M1 : Navigation & project set up in the Unity Editor & Key Features of the UNITY 3D toolset
10:00am	M2 : Developing interactive mechanics & creating the customization functionality
10:45am	**Morning Tea Break**
11:00am	M3 : Scene Creation & Lighting
12:00am	M4 : Creating User Interfaces & working with the camera & Publishing 3D applications
1:00pm	**Lunch Break**
2:00pm	M5 : Overview of Scripting
3:00pm	M6 : Android Registration & Setting Up to publish in Google Playstore
4:00pm	**Afternoon Tea Break**
5:00pm	M7 : Group Presentation

M = Module

AR COMPETITION



1 RM2000

2 RM1600

3 RM1200

Consolation RM500 x 2

COMPETITION FLOW

REGISTRATION
IN GROUPING

Online
MENTORING

PROJECT SUBMISSION

Online
JUDGING

TOP 10 FINALIST

FINAL PITCHING
VENUE TO BE CONFIRM

RM5800 PRIZE POOL ✓ TROPHY ✓ CERTIFICATE ✓

CRITERIA & SCORING

AR COMPETITION : SHAPING YOUR AUGMENTED REALITY REALM

Criteria	Marks
1.Originality & Creativity (Originality of the Invention/Innovation/Design)	20 Marks
2. Applicability of the Invention/Innovation/Design	30 Marks
3. Commercial potential/recognition (Commercial Potentialities of the Invention/Innovation/Design)	20 Marks
4. Presentation & Demonstration of the Invention/Innovation/Design	15 Marks
5. Academic & Intellectual Property Recognition (IPR)	15 Marks

PENANG YOUNG DIGITAL TALENT (PYDT)

Penang Young Digital Talents (PYDT) is a flagship initiative launched by the Penang Youth Development Corporation (PYDC) in 2020, aimed at nurturing and promoting digital skills within the youth while transforming Penang into a hub for young digital talents.

This initiative provides learning opportunities for the youth through various programmes, including enriching webinars, immersive courses, and stimulating competitions. The topics covered from the PYDT initiative includes a diverse array of fields, including Key Opinion Leadership (KOL) and Web Design to Basic Graphic Design, Digital Marketing, e-Commerce, 3D Animation, Game Development, Business in the Game, Data Analytics, and many more. Participants will also be receiving certificates recognised by the Penang State Government and industrial players to boost our youth participants' marketability and portfolio.



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PYDC for YOUTH for YOU

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AIMS OF PYDT

The Penang Young Digital Talent Programme aims to develop Malaysian student as digital talent hub as follow:

Develop talents who have a critical awareness of this digitalisation era and to understand and deal with the evolving contemporary digital landscape and are able to articulate this awareness and in particular digital roles in making a positive contribution to industrial digital transformation especially the local SMEs and generate economic impacts to the society.

Provide a stimulating learning experience and environment that offers cutting edge experience for talents to develop their potential and understand digital talents' roles in them become outstanding talents in this digital landscape and community and to be digital entrepreneurial;

Foster a digital community which promotes lifelong learning, supported by industries and continues professional development and support flexible learning with technologies to reflect and anticipate talent needs;

Provide real experience of digital learning through a managed and supported apprenticeship and placement programme or projects through application of principles, models and theories within real-life settings;

Provide stimulating and challenging learning opportunities and work-related experiences to enable full digitalisation simulation;

Provide timely evaluation and feedback which enables talents to become self-aware, reflective and independent;
As part of our commitment to ensuring that the Penang Young Digital Talents demonstrate professionalism, we aim to produce talents who are equipped to enter the digital world and are enterprising or entrepreneurial by nature. We use industrial experts sharing, practical work, field work, or work-place projects and professional practice, to develop and refine the transferable skills that create talents with the abilities that employers are seeking for;

In order to capitalize on the knowledge and experience that the program aims to develop, effective communication and an ability to work in teams and with diverse stakeholders, are seen as essential attributes of our talents. The development of communication, presentation and team working skills are significant elements and are nurtured from first principles to a high level of proficiency in many of the thematic modules and, especially, through hands on application, placement or apprenticeship modules.

Employers also value independence of thought and a creative ability to find solutions. Talents to take ownership of their learning - whether individually or in groups - and encourages independence of thought and problem-solving across a spectrum of activities;

These are essential attributes of the critical, reflective and life-long learners that Penang Young Digital Talents are expected to become. Talents are encouraged to develop their understanding through critical reflection; to question different views and perspectives and to use digital technologies to recognize and resolve problems.