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|  <p>Mr. Achmad Purnomo SEAMEO Secretariat</p> <p>Mr. Haritz Cahya SEAMEO BIOTROP</p> <p>Mr. Alfian P Laksono SEAMEO SEAMOLEC</p> <p>Dr. Khar Thoe Ng SEAMEO RECSAM</p> | <h2>The Real World of Immersive Augmented Reality</h2> <p>9 October 2017 - 30 November 2017</p> <p>Target audience: Junior High School Student, Senior High School Student, Vocational School Student, Polytechnic/College Student</p> <p>Prerequisites: Knowledge on 3D design</p> <p>Language of delivery: English</p> <p>Register below before 4 October 2017 http://bit.ly/SEAMEOaugmented_reality</p> | <p>Training Detail</p> <p>This online lecture series that has been put together by SEAMEO Secretariat, SEAMEO SEAMOLEC, SEAMEO BIOTROP and SEAMEO RECSAM to guide teachers as well students to adapt Augmented Reality into 21st century curriculum. This idea supports the SEAMEO education agenda priority areas No.7 and will support the participants to improve technological, critical thinking, improve skills in 3D designing and so many other life skills that are related to Augmented Reality.</p> <p>Tentative Schedule Monday & Thursday 14.00-16.00 (GMT+7)</p> |
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Online Registration for Students by Coordinating Teachers:

https://bit.ly/SEAMEOaugmented_reality

Deadline for Registration: 4 October 2017

1. Background

Virtual learning platforms are taking over the traditional text based learning in the digital era we live in. Therefore the professionals in the field of education should look for ways to match up teaching and learning process with the available digital tools and platforms to promote a realistic learning experience for the students.

Augmented Reality is such an effort taken to correlate learning and the 21st century technology. Augmented reality (AR) integrates digital information with the user's environment in real time. Unlike virtual reality, which creates a totally artificial environment, augmented reality uses the existing environment and overlays new information on top of it. AR creates direct, automatic, and actionable links between the physical world and electronic information. This goes beyond mobile computing and bridges the gap between virtual world and real world, both spatially and cognitively. With AR, the digital information appears to become part of the real world.

Incorporating AR into education curriculum helps the teachers and students to,

- Engage in educational activities and to become more aware of their real world environment in a structured, safe, supervised, and supportive setting. This includes interaction with video, audio, text, and graphics that can be interpreted and presented by teachers.
- Abstract concepts or ideas that might otherwise be difficult for students to comprehend can be presented through an enhanced learning environment offering access to source historical artifacts and online research in sit
- Users retain a very small amount of the information that is delivered, and a slightly larger percentage of what is shown to them, but when students become actively involved in an experience, learners will remember and retain the majority of the information presented to them.
- AR can harness both asynchronous (emailing teacher questions) and synchronous (discussion with peers) e-learning methods, etc



“The Real World of Immersive Augmented Reality” is a synchronous training that has been put together by SEAMEO Secretariat, SEAMEO SEAMOLEC, SEAMEO BIOTROP and SEAMEO RECSAM to guide teachers as well students to adapt AR into 21st century curriculum. This idea supports the SEAMEO education agenda priority areas No.7 and will support the participants to improve technological, critical thinking, improve skills in 3D designing and so many other life skills that are related to Augmented Reality.

An online platform called WebEx will be used to conduct this training course. The training will be conducted 4 hours/week. The total number of hours for training will be 28 hours and the last 4 hours will be used to guide the students to prepare their own project proposal which the learners will be using to develop their own project which is the expected outcome of the lecture series.

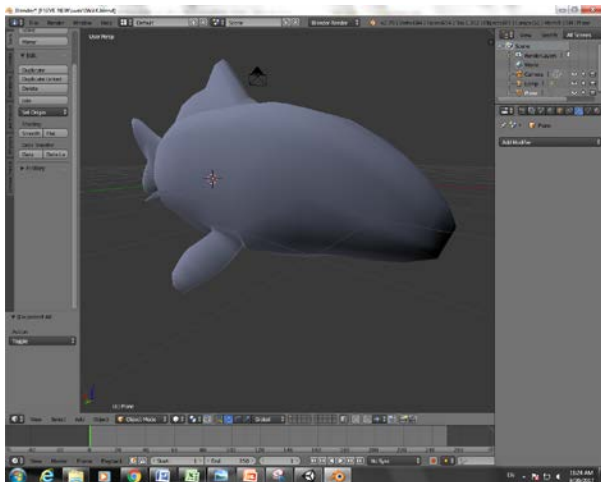
As we will be using free and special featured software programmes called Blender, Unity, AndroidSDK **students do not need to have special drawing skill and computer programming for Augmented Reality.**

- Students do not need to drawing 3D design on paper.
- Students will only be needed to write minimum code.
- Students do not need to learn a lot of step to build Augmented Reality.
- It's easy!. Everyone can learn.
- All we need is only an awesome idea and creativity.

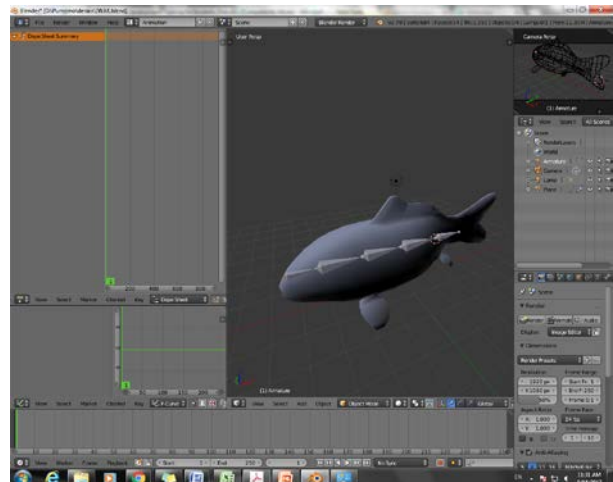
After the training, students will learn:

- 3D design process
- Create 3D design model
- Animating 3D model
- Create Augmented Reality by using 3D model
- Deploy application to Android

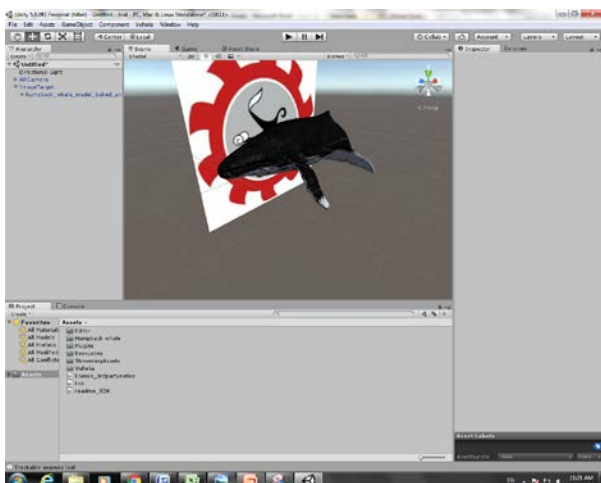
Basic Augmented Reality that students will learn:



Create 3D design model



Animating 3D model



Create Augmented Reality by using 3D model



Deploy application to Android

Students/teachers can view the asset store of Unity by visiting this weblink:

<https://www.assetstore.unity3d.com/en/>

2. Who Can Apply to Join?

Students who are studying in Grade/Year 7 to 12 or equivalent at the high/secondary/vocational high schools or Polytechnic/College students in 11 Southeast Asian countries, namely Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, and Vietnam.

Students that able to operate computer, 3D design software, and using internet.

Rules for Registration

- The school has to be a part of SEAMEO School Network for the students to take part in the session. To apply http://bit.ly/SEAMEO_School_Network
- The student must study in **Grade/Year 7 to 12 or equivalent** at the high/secondary/vocational high schools or Polytechnic/College students in 11 Southeast Asian countries.
- **Coordinating teachers or representative students** must register by a **Group/Team of students** – 1 Group/Team of students comprises of **3 students** who are studying in the **same or different education level**.
- 1 school can submit **at least 1 group/team** (comprising of 3 students) or more than 1 team.
- The registration for students should be done through online by visiting the following link https://bit.ly/SEAMEOaugmented_reality
- Information needed for the online registration such as name of school, name of school director, school address, name of coordinating teacher, email address and mobile of coordinating teacher, name of students, education level, and email address and mobile number of students.

3. Required Equipments

Require equipment for practice

- Smart phone
System requirement: Minimum **Lollipop** (Android version 5.0), higher recommended
- Notebook/ Personal Computer
System requirement: Microsoft® Windows® 7/8/10 (32- or 64-bit)
Minimum **4 GB RAM** , 8 GB RAM recommended
16 GB of available disk space minimum, 32 GB recommended

Require equipment for online training

- Personal Computer
System requirement: Already installed **Cisco WebEx** extension on browser

4. Software Programmes to be Used (Free Programme)

The following software programmes will be used during the training course.

- 3D software: Blender (<https://www.blender.org/download/>)
- Augmented Reality: Unity (<https://unity3d.com/get-unity/download>).
- Android software: AndroidSDK (<https://developer.android.com/studio/index.html>).

Students should install the above software programmes in their computer/notebook prior to the training session starts.

5. Expected Outcome

At the end of the training the participants are expected to develop a **story book** on their own incorporating the AR related lessons they learnt throughout the session.

The project **has to represent the alternative themes given below.**

- **Animal Organ**
- **Deep Sea Life**
- **Hatchery and Fishery**
- **Life of plants**
- **Space**
- **Vehicle system**

The participants can choose either one theme or five different themes, but at the end they are expected to compile **at least five different objects** that have been designed and developed by them in the book.

References

An example of a story book, for the reference of the students.



Title:

Augmented Reality Books: Safar Animals, World of Fairytales (Paparmali)

Author:

Edgaras Art

Youtube link video:

<https://www.youtube.com/watch?v=jH4PmVLq3Xc>

6. Prizes for Outstanding Teams

I. Students

Student's technological project output incorporating AR concepts. For the outstanding teams, there are the following 3 monetary prizes:

- 1st Prize: 500 USD/team
- 2nd Prize: 300 USD/ team
- 3rd Prize: 200 USD/team

II. Teachers

Coordinating teacher write the report on student learning process.

Top awardees for coordinating teacher will be invited to present in WebEx platform during networking session of SSYS (Search for SEAMEO Young Scientist) 2018 regional congress with theme "Youth creativity for harmonising sustainable development goals".

7. Certificate of Completion

Students will be awarded a certificate of completion upon the submission of the completed Augmented Reality project at the end of the training course.

8. Training Sessions and Content

The training will be conducted within 2 months, starting from 9 October 2017 to 30 November 2017.

Total Hours:

- Total Training Hours: **24 hours for training sessions** and **4 hours for guide to prepare project proposal**.
- 2 Training session per week (4 hours for each training session). This session will be conduct by SEAMEO Secretariat, SEAMEO SEAMOLEC, and SEAMEO BIOTROP.
- 4 hours for guide to prepare project proposal to give information how to create project proposal for teacher competition. This session will be conduct by SEAMEO RECSAM.

Content:

- Introducing to Augmented Reality
- Basic Blender
- Advance Blender
- Material and Texture
- Animating 3D Blender
- Introduction to Storyboard
- Introducing to Unity
- Single target
- Multiple target & Controlling target
- Adding sound effect to Augment Reality
- Final Assignment
- Guide to Project Proposal (1)
- Guide to Project Proposal (2)

9. Training Schedule

| Week | Date | Session | Activity | Facilitator |
|------|--|---------|--|-------------------|
| 1 | Monday, 9 October 2017 14:00 - 16:00 Bangkok Time | 1 | WebEx Trial: 1. Powerpoint detail about Lecture1 & Lecture 2 & Lecture 3 2. Schedule of Online Training 3. Introduction to Online Training Program 4. Introduction to requirement software 5. Target output | Purnomo SEAMES |
| | Thursday, 12 October 2017 14:00 - 16:00 Bangkok Time | 2 | Introduction to Augmented Reality: 1. Introduction to Augmented Reality. Ex: Pokemon GO video 2. Explaining minimal requirement software 3. Download link Blender, Unity, and Android SDK | Purnomo SEAMES |
| 2 | Monday, 16 October 2017 14:00 - 16:00 Bangkok Time | 1 | Basic Blender: 1. Installing Blender 2. Introduction to Blender tools (user setting, navigation, basic control, and move & selection) 3. Creating 3D simple model 4. Exporting to 3D simple model | Purnomo SEAMES |
| | Thursday, 19 October 2017 14:00 - 16:00 Bangkok Time | 2 | Advance Blender: 1. Introduction to Blender Modifier 2. Creating 3D life object using Modifier 3. Exporting to 3D model 4. Introduction to blendswap.com | Purnomo SEAMES |

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| 3 | Monday, 30 October 2017 14:00 - 16:00 Bangkok Time | 1 | Material and Texture: 1. Introduction to Material Blender tools 2. Introduction to Texture Blender tools 3. Applying to 3D life object | Purnomo SEAMES |
| | Thursday, 2 November 2017 14:00 - 16:00 Bangkok Time | 2 | Animating 3D Blender: 1. Introduction Blender 3D animation 2. Rigging and rendering 3D life object 3. Exporting 3D life object to animation format | Alfan SEAMOLEC |
| 4 | Monday, 6 November 2017 14:00 - 16:00 Bangkok Time | 1 | Introduction to Storyboard: 1. Creating a story for AR concept 2. Guide to creating storyboard picture 3. Storyboard picture as AR image target | Alfan SEAMOLEC |
| | Thursday, 9 November 2017 14:00 - 16:00 Bangkok Time | 2 | Introduction to Unity: 1. Installing Unity 2. Introduction to Unity tools 3. Import asset in Unity | Haritz BIOTROP |
| 5 | Monday, 13 November 2017 14:00 - 16:00 Bangkok Time | 1 | Single Target: 1. Insert data target in Vuforia 2. Installing Vuforia SDK Unity 3. Creating single target Augmented Reality 4. Deploy Application to Android | Haritz BIOTROP |
| | Thursday, 16 November 2017 14:00 - 16:00 Bangkok Time | 2 | Multiple Target & Controlling Target: 1. Insert multiple database in Vuforia 2. Creating multiple project Augmented Reality 3. Introduction to asset.unity.com 4. Virtual button for animation target 5. Lean Touch | Haritz BIOTROP |
| 6 | Monday, 20 November 2017 14:00 - 16:00 Bangkok Time | 1 | Adding sound effect to Augment Reality: 1. Sharing download link sound effect 2. Adding sound effect to Augment Reality project 3. Changing App icon | Haritz BIOTROP |
| | Thursday, 23 November 2017 14:00 - 16:00 Bangkok Time | 2 | Final Assignment: 1. Participants Final Assignment | Haritz BIOTROP |
| 7 | Monday, 27 November 2017 14:00 - 16:00 Bangkok Time | 1 | Project proposal: 1. Guide to prepare project proposal (1) | Dr Khar Thoe Ng RECSAM |
| | Thursday, 30 November 2017 14:00 - 16:00 Bangkok Time | 2 | Project proposal: 1. Guide to prepare project proposal (2) | Dr Khar Thoe Ng RECSAM |

10. Instructor



Mr. Achmad Purnomo
SEAMEO Secretariat



Mr. Alfian P Laksono
SEAMEO SEAMOLEC



Mr. Haritz Cahya
SEAMEO BIOTROP



Dr Khar Toe Ng
SEAMEO RECSAM

11. Timeline

| No | Date | Topic |
|----|------------------------------------|--|
| 1 | 19 September 2017 - 4 October 2017 | Online Registration |
| 2 | 4 October 2017 | Deadline of Registration |
| 3 | 6 October 2017 | Announcement of Training Participants by Email and on SEAMEO Website |
| 4 | 9 October 2017 | Webex Training Sessions (To train participants to use the web teleconference platform) |
| 5 | 12 October 2017 - 30 November 2017 | Training Sessions |
| 6 | 30 November 2017 - 4 January 2018 | Development of AR project by the student teams |
| 7 | 4 January 2018 | Deadline of Submission AR project |
| 8 | 8 -12 January 2018 | Review AR project (by Internal Committee) |
| 9 | 15 January 2018 | Announcement of the shortlisted teams |
| 10 | 23 January 2018 | Presentation of AR project by shortlisted teams |
| 11 | 26 January 2018 | Announcement of the Awarding Teams |

12. General Rules and Conditions

- Students who are unable to connect the online session can refer back to the video recording for the sessions they missed.
- Students should prepare the required software before the training session begins. The trainer will provide the instructions to the students.

13. Contact Details

For additional information of the training course and registration, please contact:

Ms Piyapa Su-angavatin
Coordinator

SEAMEO Secretariat, Bangkok, Thailand

Tel: + 662 391 0144 | Fax: + 662 381 2587

Email: schoolnetwork@seameo.org (cc: piyapa@seameo.org)

www.seameo.org

ADDITIONAL INFORMATION:

1. What is “SEAMEO”?

The Southeast Asian Ministers of Education Organization (SEAMEO) is a regional intergovernmental organization established in 1965 among governments of Southeast Asian countries to promote regional cooperation in education, science and culture in the region.

Its 11 Member Countries include Brunei Darussalam, Cambodia, Lao PDR, Indonesia, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor Leste and Vietnam. It embodies 8 Associate Member Countries: Australia, Canada, France, Germany, the Netherlands, New Zealand, Spain and United Kingdom; and four Affiliate Members, namely the International Council for Open and Distance Education (ICDE), the University of Tsukuba (Japan), British Council, and China Education Association for International Exchange (CEAIE).

Over the past four decades, SEAMEO has developed 21 specialist institutions throughout Southeast Asia which provide regional leadership in human resource development and diverse expertise that they offer in education, culture, health, environment, and agriculture and natural resources. (www.seameo.org)