



*Workshop on*

# “Internet of Things (IoT) & Introduction to AI and Python Programming”

 15 & 16 August 2024

 SEAMEO RECSAM, Penang, Malaysia

## Facilitators:



**Ms. Sivaranjini Sinniah**  
Science Education Specialist  
SEAMEO RECSAM, Penang



**Mr. Azizan bin Isa**  
Computer Science Lecturer  
Kolej Matrikulasi Kelantan



**Mr. Nadzrul Iswandie  
bin Che Nazir**  
Computer Science Lecturer  
Kolej Matrikulasi Kedah

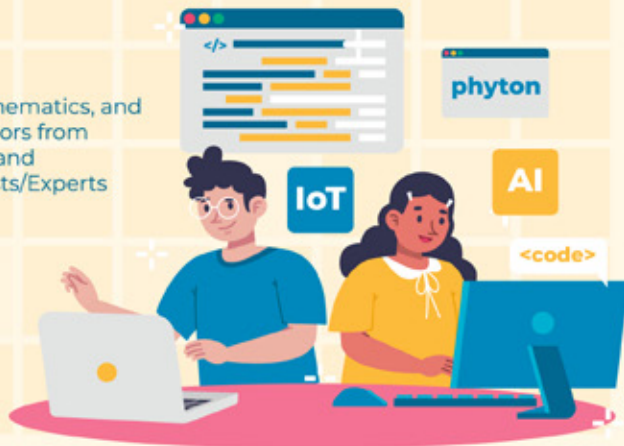


**Dr. Bala Murali Tanimale**  
Science Education Specialist  
SEAMEO RECSAM, Penang

## Targeted Participants:

Primary and Secondary Science, Mathematics, and Technology Teachers, Teacher Educators from Teacher Training Institutes, Colleges, and Universities, and Curriculum Specialists/Experts from the Ministry of Education

**Organised by:**  
SEAMEO RECSAM, Penang, Malaysia



## RATIONALE

The rapid advancement of technology has significantly transformed the educational landscape, making it essential for educators to stay current with emerging trends and tools. The Internet of Things (IoT) offers new possibilities for improving teaching and learning experiences, marking a dramatic change in how we interact with technology. This workshop is designed to equip teachers with a comprehensive understanding of IoT, its applications, and its potential impact on education. The goal of this session is to give educators a thorough grasp of the Internet of Things, its uses, and how it might affect learning. Teachers may design more interactive, effective, and captivating learning environments by incorporating IoT into their lesson plans.

IoT makes it possible to build smart classrooms, expediting administrative duties and encouraging experiential learning grounded in reality. It also encourages pupils to think critically, creatively, and innovatively, aligning with general educational objectives. This opportunity for professional development improves teachers' skills.

Artificial Intelligence (AI) and Python programming are revolutionizing industries and fostering innovation across different sectors. AI is often seen as a complex and difficult field to access. This workshop aims to remove these barriers by introducing fundamental concepts and terms in a clear and approachable way. Participants will develop a comprehensive understanding of AI, its subfields, and how it is applied in real-world scenarios.

Python is a versatile and beginner-friendly programming language widely used in AI development. By teaching Python, we provide participants with a valuable skill set that is highly sought after in the tech industry. Participants will learn the basics of Python syntax, data structures, and libraries essential for AI programming.

The "Introduction to AI and Python Programming" workshop is designed to make AI accessible and engaging for everyone, regardless of previous experience. It provides a thorough introduction to AI concepts and hands-on Python programming practice. The goal of the workshop is to inspire and prepare participants with the knowledge and skills necessary to navigate the ever-changing landscape of technology and innovation.

## OBJECTIVES

At the end of the workshop, the participants should be able to:

- 1) Equip with a comprehensive understanding of the basic principles, components, and functionalities of IoT.
- 2) To learn the basics of electronics using Arduino microcontrollers and how to create basic circuits with the breadboard.
- 3) To acquire Arduino programming language and Integrated Development Environment (IDE).
- 4) Equip teachers with the knowledge to create real-world IoT applications that provide students with practical, hands-on learning experiences.
- 5) Strengthen teachers' ability to support and promote STEM (Science, Technology, Engineering, and Mathematics) education through the integration of IoT technologies.
- 6) Ensure teachers are well-prepared to adapt to and incorporate future technological trends related to IoT in education, maintaining their relevance and effectiveness in the classroom.
- 7) Gain a clear understanding of what Artificial Intelligence (AI) is.
- 8) Understand the key terminologies and concepts within AI and Python Programming.
- 9) Acquire the basics of Python programming, including syntax, data structures, and key libraries.

## **TARGETED PARTICIPANTS**

Primary and Secondary Science, Mathematics, and Technology Teachers, Teacher Educators from Teacher Training Institutes, Colleges, and Universities, and Curriculum Specialists/Experts from the Ministry of Education.

## **EQUIPMENT**

Equipment/material needed for the workshop will be provided by the organiser.

## **DATE AND VENUE**

15 & 16 August 2023 (Thursday & Friday)  
SEAMEO Hall, SEAMEO RECSAM, Penang, Malaysia

## **ORGANISER**

SEAMEO RECSAM, Penang, Malaysia

## **FACILITATORS**

### **Ms. Sivaranjini Sinniah**

Science Education Specialist  
SEAMEO RECSAM, Penang

### **Mr. Azizan bin Isa**

Computer Science Lecturer  
Kolej Matrikulasi Kelantan

### **Mr. Nadzrul Iswandie bin Che Nazir**

Computer Science Lecturer  
Kolej Matrikulasi Kedah

### **Dr. Bala Murali Tanimale**

Science Education Specialist  
SEAMEO RECSAM, Penang

## **WORKSHOP FEE**

Type I: RM 262.80 per participant (2 days)  
Type II: RM 166.40 per participant (1 day)

## **ACCOMMODATION AT RECSAM INTERNATIONAL HOUSE**

For booking accommodation at SEAMEO RECSAM International House, you may click the following link for further information: [http://www.recsam.edu.my/sub\\_InternationalHouse/](http://www.recsam.edu.my/sub_InternationalHouse/)

Check-in: 14 August 2024  
Check-out: 16 August 2024, after the workshop

## **FOOD**

Morning tea, lunch and afternoon tea will be provided by SEAMEO RECSAM during the workshop.

## REGISTRATION, PAYMENT & CLOSING DATE

To enroll, please register online by **9 August 2024** via <https://forms.gle/2VHm5jzD3Ee8QkjPA> or scan the following QR code. Upload your payment slip for confirmation of registration.



Director  
SEAMEO RECSAM,  
Jalan Sultan Azlan Shah,  
11700 Gelugor, Penang.  
by Fax at 604-6522737 or email

## PAYMENT (INTERNET BANKING)

Pay to: SEAMEO RECSAM  
Bank: MAYBANK GELUGOR BRANCH, PENANG  
Account Number: 5571 5700 0647

## FOR ENQUIRIES

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Ms. Noraini Daud:	+6046522741	(noraini_daud@recsam.edu.my)

## SCHEDULE OF ACTIVITIES

Day 1 (Thursday, 15 August 2024)	
0800 - 0830	Registration
0830 - 1030	Introduction of Internet of Things (IoT) and Electronic Components
1030 - 1100	Group Photo and Tea Break
1100 - 1300	Development of Simple Circuits using Coding
1300 - 1430	Lunch Break
1430 - 1630	Control LED using a Smartphone
1630 - 1645	Closing Programme and Certificate Presentation
1645	Tea Break
Day 2 (Friday, 16 August 2024)	
0800 - 0830	Registration
0830 - 1030	Introduction to AI
1030 - 1100	Group Photo and Tea Break
1100 - 1300	Introduction to Python Programming 1 & Hands-On Activities
1300 - 1430	Lunch Break
1430 - 1630	Introduction to Python Programming 2 & Hands-On Activities
1630 - 1645	Closing Programme and Certificate Presentation
1645	Tea Break

*Note: This programme schedule may be subjected to changes without prior notice*



## INTRODUCING THE WORKSHOP FACILITATOR



**Sivaranjini Sinniah** is a Science Education Specialist at the Training & Research Division, SEAMEO RECSAM. She holds a Bachelor's Degree in Biomedical Science from Management and Science University (MSU). She was later awarded a Master's Degree in Science Biotechnology by Universiti Teknologi Malaysia (UTM). Since then, she has worked as a lecturer for Pathology and Science subjects at several private educational institutions. Her current research interest is in the application of technology in education. She has collaborated with external experts

in Statistical Thinking and the Internet of Things (IoT) to provide a series of webinars and workshops at SEAMEO RECSAM. Additionally, she has been actively involved in various workshops, conferences, congresses, and webinars organised by SEAMEO RECSAM. She is now exploring the Next Generation Science Standards.



**Nadzrul Iswandie bin Che Nazir** is a Computer Science lecturer with extensive experience, having taught at Labuan Matriculation College from 2009 to 2016, Kelantan Matriculation College from 2016 to 2022, and currently at Kedah Matriculation College since 2022. He holds a Bachelor of Education in Information Technology from UUM and a Master of Education in Management Education from UMS. Additionally, he serves as the Main Coach for Digital Technology and Digital Classroom in Kedah Matriculation College.



**Azizan bin Isa** is a Computer Science lecturer with extensive experience, having taught at Kelantan Matriculation College from 2014 to now. He holds a Bachelor of Computer Science (Computer Systems). Additionally, he serves as the Main Coach for Digital Technology and Digital Classrooms at Kelantan Matriculation College. He is also a robotics and drone trainer at the Kelantan Matriculation College, besides being involved with a national-level innovation program organised by a local university.



**Dr. Bala Murali Tanimale** is currently the Science Specialist at the Southeast Asian Ministers of Education Organization Regional Centre for Education in Science and Mathematics (SEAMEO RECSAM). With 19 years of teaching experience in physics and science, Dr. Bala is an accomplished educator with a PhD in Science Education, specialising in Educational Neuroscience and Physics Education. His career includes extensive experience as a physics and science teacher, during which designed and implemented innovative curriculum materials and mentored

students in both academic and extracurricular activities. Currently, Dr. Bala conducts cutting-edge research on AI-driven personalised learning and develops advanced educational methodologies to enhance science education. Dr. Bala's work is characterised by a strong foundation in educational neuroscience, a commitment to integrating AI in education, and a collaborative approach to advancing the field.



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